SUFU 2016 Winter Meeting
February 23 – 27, 2016
The Roosevelt New Orleans
A Waldorf Astoria Hotel
New Orleans, Louisiana

PROGRAM COMMITTEE:
Gary E. Lemack, MD, Chair
Kevin Benson, MD, MS
David Ginsberg, MD
Priya Padmanabhan, MPH, MD
Lori A. Birder, PhD, Basic Science Chair
Adam Klausner, MD, Basic Science Co-Chair

JOINTLY PROVIDED BY:
Creighton University Health Science Continuing Education and the
Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction
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I am delighted to invite you to New Orleans and the historic Roosevelt, for the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction 2016 Winter Meeting. The Roosevelt, restored in 2009 but initially opening in 1893, has been home to our meeting in the past and we are thrilled to return to the luxurious surroundings that the Roosevelt has to offer and the myriad of social activities that New Orleans boasts. I know the meeting and the venue will not disappoint.

Our meeting has most assuredly expanded over the last several years. Our focus remains on education of our members and trainees with a keen eye to enhancing interactions between basic and clinical scientists, clinicians, and industry partners. The meeting starts with basic science plenary sessions focusing on areas of interest to both the clinician and basic scientist, carefully planned and coordinated by my co-chairs Lori Birder, PhD and Adam Klausner, MD. Topics for this portion of the meeting include Biomechanics of the Pelvic Floor, Urinomics and an Update on the MAPP Network – clearly of tremendous interest to all SUFU members.

The clinical portion of the meeting will include panel discussions focusing on controversial and topical issues such as Underactive Bladder, lively debates by leaders in our field on topics such as optimal management of apical pelvic organ prolapse and post prostatectomy incontinence, as well as state of the art discussions on a wide array of topics including management of urethral strictures in women, and an update on the evaluation and treatment of fecal incontinence. These wide ranging topics reflect the varied and broad nature of our members, a unique aspect of SUFU that we fully embrace.

We continue to have smaller breakout sessions each day to encourage more face-to-face discussions with renowned thought leaders. Additionally, this year we will continue to offer a very popular course from last year on biostatistics – added value to our trainees and members.

In addition to promoting education of our members, the SUFU meeting at its essence is focused on research and as such, poster and podium scientific sessions remain a huge aspect of the meeting. We encourage members to actively engage the authors during these sessions as a means of stimulating discussion and generating new ideas. Throughout the meeting, we will be highlighting several of our award winning researchers and grant recipients, as we hope to stimulate thought, promote innovation, and encourage collaboration. Once again, I owe a special thanks to David Ginsberg, co-chair of the clinical meeting, for overseeing the abstract selection process, Kevin Benson, MD for developing the neuromodulation content of the meeting and Priya Padmanabhan, MD, MPH for participating on the program committee.

No SUFU meeting would be complete without social events. The SUFU Welcome Reception will be held on Wednesday, February 24th and a Cocktail Hour and Awards Presentation on Friday, February 26th. We encourage you to interact with your colleagues, industry partners and friends from across the country and world throughout the meeting, but particularly during these events. Additionally, there will be other opportunities to interact with our industry members at sponsored lunch symposiums and throughout the meeting in the exhibit hall. Lastly, I urge all members to spend time on our new website (www.sufuorg.com), which was completely revamped under the leadership of Sandip Vasavada, information regarding future educational events, grant opportunities, fellowships, subspecialty certification, and a wide variety of other clinical topics is available in a new, easy to navigate format.

On behalf of all of my co-chairs, I look forward to seeing you in New Orleans.

Best Regards,

Gary E. Lemack, MD
SUFU Vice President and Winter Program Chair
Thank You Abstract Reviewers

Due to the large number of abstracts submitted this year, the selection process was done anonymously. We thank each reviewer for the timely review of the abstracts and for conforming to the scoring grid. We gratefully acknowledge the participation of:

Mike E. Albo, MD; UCSD Medical Center
Karl-Erik Andersson, MD, PhD; Wake Forest Institute for Regenerative Medicine
Jennifer Anger, MD, MPH; Cedars-Sinai Medical Center
Jerry G. Blaivas, MD; Cornell University Medical College
Maude Carmel, MD, FRSCC; UT Southwestern Medical Center
Toby C. Chai, MD; Yale University
Bilal I. Chughtai, MD; Weill Cornell Medical College
Lindsey Cox, MD; Medical University of South Carolina
Vivian Cristofaro, PhD; VA Boston Healthcare System
Margot S. Damaser, PhD; Cleveland Clinic Foundation
Elise De, MD; Albany Medical Center South Clinical Campus
Dan S. Elliott, MD; Mayo Clinic/Dept. of Urology
Farzeen Firoozi, MD; North Shore-LIJ Health System
Matthew O. Fraser, PhD; Duke University and DVAMC
Richard T. Kershen, MD; HHMG Tallwood Institute of Urology
David A. Ginsberg, MD; Keck Medicine of USC
Alexander Gomelsky, MD; LSUHSC-S
Tomas L. Griebling, MD, MPH; University of Kansas Med. Ctr.
Adam P. Klausner, MD; Virginia Commonwealth University
Jason M. Kim, MD; Stony Brook University Medical Center
Kathleen C. Kobashi, MD, FACS; Virginia Mason Medical Center
Stephen R. Kraus, MD; Univ. of Texas/HSC at San Antonio
Henry Lai, MD; Washington University School of Medicine
Ngoc-Bich “Nikki” Le; Duke Department of Urology
Una J. Lee, MD; Virginia Mason Medical Center
Sara M. Lenherr, MD, MS; University of Utah SOM
Deborah J. Lightner, MD; Mayo Clinic/Dept. of Urology
Ayman Mahdy, MD, PhD; University of Cincinnati
Kurt A. McCammon, MD; Urology of Virginia PLLC
Arthur P. Mourtzinos, MD, MBA; Lahey Clinic, Institute of Urology
Christopher K. Payne, MD; Vista Urology & Pelvic Pain Partners
Andrew C. Peterson, MD, FACS; Duke University Medical Center
Leslie M. Rickey, MD, MPH; Yale School of Medicine
Larissa V. Rodriguez, MD; Keck Medicine of USC - Beverly Hills
Matt P. Rutman, MD; Columbia University
Jaspreet S. Sandhu, MD; Memorial Sloan-Kettering Cancer Center
Steven W. Siegel, MD; Urology Specialists, P.C.
Ajay K. Singla, MD; University of Toledo
John T. Stoffel, MD; University of Michigan Medical Center
Maryrose P. Sullivan, PhD; VA Boston Healthcare System
Sandip P. Vasavada, MD; Cleveland Clinic Foundation

We would also like to thank the 2016 SUFU Video Award Review Committee:

2016 SUFU Video Award Review Committee
Sandip P. Vasavada, (Chair)
Benjamin E. Dillon, MD
Richard Lee, MD, MBA
Elizabeth B. Takacs, MD
Ajay K. Singla, MD

Lastly, we would also like to thank the 2016 SUFU Essay Competition Reviewers:

2016 SUFU Essay Competition Reviewers

Basic Science Essay Reviewers
Lori A. Birder, PhD (Chair)
Matthew O. Fraser, MD
Adam P. Klausner, MD

Clinical Essay Reviewers
Craig V. Comiter, MD (Chair)
Z. Chad Baxter, MD
Alvaro Lucioni, MD
### TUESDAY, FEBRUARY 23, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>11:00 a.m.</td>
<td>Registration/Information Desk Open - Roosevelt Foyer, Mezzanine Level</td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td>Speaker Ready Room Hours - Napoleon Room, Mezzanine Level</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td>Panel 1: Biomechanics of the Pelvic Floor</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>2:40 p.m.</td>
<td>Keynote Speaker: How Peripheral Denervation May Explain Detrusor Overactivity with Impaired Contractility</td>
</tr>
<tr>
<td>3:30 p.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>3:40 p.m.</td>
<td>Break</td>
</tr>
<tr>
<td>3:55 p.m.</td>
<td>Panel 2: Urinomics</td>
</tr>
<tr>
<td>5:25 p.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>5:35 p.m.</td>
<td>Break</td>
</tr>
<tr>
<td>5:50 p.m.</td>
<td>*Basic Science Poster Session I (Non-Moderated)</td>
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### WEDNESDAY, FEBRUARY 24, 2016

<table>
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>7:00 a.m.</td>
<td>Welcome</td>
</tr>
<tr>
<td>8:45 a.m.</td>
<td>Panel 3: Update on the MAPP Network</td>
</tr>
<tr>
<td>10:20 a.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>Keynote Speaker: An Academic Pharmacologist in Commercial Drug Development. Experience From β3-adrenoceptor Agonist Development</td>
</tr>
<tr>
<td>11:45 a.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>11:55 a.m.</td>
<td>2016 Basic Science Prize Essay Award Presentation</td>
</tr>
<tr>
<td>12:05 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
</tr>
<tr>
<td>3:30 p.m.</td>
<td>Panel 4: Fibrosis/Inflammation and Urological Diseases</td>
</tr>
<tr>
<td>3:10 p.m.</td>
<td>Panel 5: Vascular Signaling in the Lower Urinary Tract</td>
</tr>
<tr>
<td>4:00 p.m.</td>
<td>Q &amp; A</td>
</tr>
<tr>
<td>4:10 p.m.</td>
<td>Break</td>
</tr>
<tr>
<td>4:25 p.m.</td>
<td>Basic Science Poster Session II (Non-Moderated)</td>
</tr>
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</table>
THURSDAY, FEBRUARY 25, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>6:30 a.m.</td>
<td>Registration/Information Desk Open - Roosevelt Foyer, Mezzanine Level</td>
</tr>
<tr>
<td>6:30 a.m.</td>
<td>Speaker Ready Room Hours - Napoleon Room, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Exhibit Hall Open - Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Breakfast in the Exhibit Hall - Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Residents and Fellows Breakfast - Chambers II &amp; IV, Mayor’s Suite Level</td>
</tr>
<tr>
<td>7:55 a.m.</td>
<td>Introduction</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Eulogy - William D. Steers, MD</td>
</tr>
<tr>
<td>8:10 a.m.</td>
<td>Panel: Underactive Bladder</td>
</tr>
<tr>
<td>8:50 a.m.</td>
<td>Panel: Pelvic Pain: Defining Causes, Providing Solutions</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>Presidential Address</td>
</tr>
<tr>
<td>9:45 a.m.</td>
<td>Break - Visit with Exhibitors</td>
</tr>
<tr>
<td>10:15 a.m.</td>
<td>Panel: Guidelines for the Care of Patients with Neurogenic Bladder Conditions</td>
</tr>
<tr>
<td>10:55 a.m.</td>
<td>Urodynamics Mismatch - Should We Listen to the Study, or the Patient?</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td>IC/Pelvic Pain/Geriiatrics/BPH Podium Session</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td>LUTS/Voiding Dysfunction/Neurogenic Bladder Moderated Poster Session</td>
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<tr>
<td>1:00 p.m.</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td>LUTS/Voiding Dysfunction/Neurogenic Bladder Non-Moderated Poster Session</td>
</tr>
<tr>
<td>1:00 p.m.</td>
<td>Conti/Lafitte Room, Mezzanine Level</td>
</tr>
<tr>
<td>2:20 p.m.</td>
<td>Blivas Lecture: Lifetime Achievement Award</td>
</tr>
<tr>
<td>2:50 p.m.</td>
<td>Break - Visit with Exhibitors</td>
</tr>
<tr>
<td>3:20 p.m.</td>
<td>Panel: Gynecological Considerations in Women Planning Prolapse Repair</td>
</tr>
<tr>
<td>3:50 p.m.</td>
<td>Debate: Optimal Repair of Apical Prolapse</td>
</tr>
<tr>
<td>4:15 p.m.</td>
<td>Zimskind Lecture: &quot;Urodynamics 2.0: Time For An Upgrade&quot;</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>Breakout Session</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>1. Congenitalism</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Male Incontinence/Urodynamics Podium Session</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Female Urology/Incontinence Moderated Poster Session</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>*Female Urology /Incontinence Non-Moderated Poster Session</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>*Biostatistics Course</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Chamber I, Mayor’s Suite Level</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>*Neurourology and Urodynamics Reviewer Course</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Pelvic Organ Prolapse/Reconstruction Podium Session</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Annual Business Meeting</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Male Incontinence/ Urodynamics/ Neuromodulation Moderated Poster Session</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Male Incontinence/ Urodynamics/ Neuromodulation Non-Moderated Poster Session</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Break - Visit with Exhibitors</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Announcements</td>
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FRIDAY, FEBRUARY 26, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:00 a.m.</td>
<td>Registration/Information Desk Open - Roosevelt Foyer, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Speaker Ready Room Hours - Napoleon Room, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Exhibit Hall Open - Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Breakfast in the Exhibit Hall - Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>Cocktail Hour and Award Presentations - Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>*Biostatistics Course</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Chamber I, Mayor’s Suite Level</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>*Neurourology and Urodynamics Reviewer Course</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>Chamber III, Mayor’s Suite Level</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>*Video Session I</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Annual Business Meeting</td>
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<tr>
<td>8:30 a.m.</td>
<td>Pelvic Organ Prolapse/Reconstruction Podium Session</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Male Incontinence/ Urodynamics/ Neuromodulation Moderated Poster Session</td>
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<tr>
<td>8:30 a.m.</td>
<td>Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Male Incontinence/ Urodynamics/ Neuromodulation Non-Moderated Poster Session</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Break - Visit with Exhibitors</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Announcements</td>
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</tbody>
</table>
Schedule at a Glance

All sessions located in *The Roosevelt Ballroom, Mezzanine Level* unless otherwise noted.

### FRIDAY, FEBRUARY 26, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>10:35 a.m.</td>
<td>Panel: Post-Prostatectomy Incontinence</td>
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<tr>
<td>11:10 a.m.</td>
<td>Distinguished Service Award Lecture: Urethral Surgery for Urethral Stricture - Hamilton Russell to the Present</td>
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</tr>
<tr>
<td>11:30 a.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
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<tr>
<td>1:00 p.m.</td>
<td>State of the Art: Neuromodulation: What's Around the Corner and What's on the Horizon?</td>
<td></td>
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<tr>
<td>1:30 p.m.</td>
<td>Panel: Evaluation and Treatment of Fecal Incontinence</td>
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<tr>
<td>2:00 p.m.</td>
<td>2013 Neuromodulation Grant Recipient Presentations</td>
<td></td>
</tr>
<tr>
<td>2:10 p.m.</td>
<td>Dickno-Lapides Award Presentation</td>
<td></td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>Break - Visit with Exhibitors</td>
<td></td>
</tr>
<tr>
<td>2:45 p.m.</td>
<td>GURS SOTA Lecture: Female Urethroplasty Update 2016</td>
<td></td>
</tr>
<tr>
<td>3:10 p.m.</td>
<td>Point Counter Point: Suprapubic Tube in 2016</td>
<td></td>
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<tr>
<td>3:30 p.m.</td>
<td>Chemodenervation Update: Drug Delivery - Can We Do Better?</td>
<td></td>
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<tr>
<td>3:50 p.m.</td>
<td>2014 Chemodenervation Award Winners</td>
<td></td>
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<tr>
<td>4:00 p.m.</td>
<td>Neuromodulation/OAB Moderated Podium Session</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>5:00 p.m.</td>
<td>Breakout Session</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Gynecologic Considerations in FPMRS Practice</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>IC/ Pelvic/ Geriatrics/ BPH Non-Moderated Podium Session</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>IC/ Pelvic/ Geriatrics/ BPH Non-Moderated Poster Session</td>
<td></td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Breakout Session</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Pelvic Floor</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>3. Common Problems in Neuromodulation</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>8:00 p.m.</td>
<td>1. Gynecologic Considerations in FPMRS Practice</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>8:30 p.m.</td>
<td>GURS SOTA Lecture: Female Urethroplasty Update 2016</td>
<td></td>
</tr>
<tr>
<td>9:00 p.m.</td>
<td>Point Counter Point: Suprapubic Tube in 2016</td>
<td></td>
</tr>
<tr>
<td>9:30 p.m.</td>
<td>Chemodenervation Update: Drug Delivery - Can We Do Better?</td>
<td></td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Neuromodulation/OAB Non-Moderated Poster Session</td>
<td></td>
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<tr>
<td>10:30 a.m.</td>
<td>Breakout Session</td>
<td></td>
</tr>
<tr>
<td>11:00 a.m.</td>
<td>1. Gynecologic Considerations in FPMRS Practice</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>2. Pelvic Floor</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>3. Common Problems in Neuromodulation</td>
<td>Orpheum Room, 2nd Level</td>
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### SATURDAY, FEBRUARY 27, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:30 a.m.</td>
<td>Registration/Information Desk Open - Roosevelt Foyer, Mezzanine Level</td>
<td></td>
</tr>
<tr>
<td>6:00 a.m.</td>
<td>Speaker Ready Room Hours - Napoleon Room, Mezzanine Level</td>
<td></td>
</tr>
<tr>
<td>6:00 a.m.</td>
<td>Breakfast - Roosevelt Promenade, Mezzanine Level</td>
<td></td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>Video Session II</td>
<td></td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Female Urology/ Incontinence Podium Session</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>8:15 a.m.</td>
<td>LUTS/ Voiding Dysfunction/ Neurogenic Bladder Podium Session</td>
<td>Orpheum Room, 2nd Level</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>Pelvic Organ Prolapse/ Reconstruction Moderated Poster Session</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>Pelvic Organ Prolapse/ Reconstruction Non-Moderated Poster Session</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
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<tr>
<td>9:30 a.m.</td>
<td>Registration In Urology - How Will You Be Affected?</td>
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<tr>
<td>9:50 a.m.</td>
<td>Impact of ICD-10 On Your Practice</td>
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<tr>
<td>10:20 a.m.</td>
<td>Update on Maintenance of Certification (MOC) for FPMRS</td>
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<td>10:40 a.m.</td>
<td>Debate: Mini-Sling Has Come of Age</td>
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<tr>
<td>11:00 a.m.</td>
<td>OAB Panel: Extraordinarily Challenging Cases</td>
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<tr>
<td>11:30 a.m.</td>
<td>Panel: What To Do When Problems Persist After Mesh Removal?</td>
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<tr>
<td>12:00 p.m.</td>
<td>Meeting Adjourns</td>
<td></td>
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2015 Chemodenervation Grant Winners

Dobberfuhl, Amy -- Stanford University School of Medicine
Localization of OnabotulinumtoxinA and Cystometric Response Following Single versus Multiple Injections for the Treatment of Overactive Bladder in a Rat Model

Khavari, Rose -- Houston Methodist Hospital
Evaluation of Central Inhibitory Effects of Intravesical Injection of Botulinum toxin A in Patients with Neurogenic and Non-neurogenic Detrusor Overactivity

Barboglio Romo, Paholo -- University of Michigan
Onabotulinum Toxin Repeated Injections in Cervical Spinal Cord Injury

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2015 OAB Fecal Incontinence Grant Winners

Zhang, Yingchun -- University of Houston
Characterization of the Number of Motor Units and the Innervation Zone Distribution of Female External Anal Sphincter

Stewart, Amanda -- University of California at San Diego
Functional Significance of Human External Anal Sphincter Architecture

2015 OAB Fecal Incontinence Grant Reviewers
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Henry Lai, MD
Leslie M. Rickey, MD, MPH
2015 OAB Bladder and Urgency Urinary Incontinence Research Grant Winners

Suskind, Anne -- University of California, San Francisco
The Impact of Frailty on the Treatment of Overactive Bladder in the Older Population

Nardos, Rahel -- Oregon Health & Science University
The Role of Urinary Microbiomes in Woman with Urgency Urinary Incontinence

Acevedo Alvarez, Marian -- Yale University
Augmented urothelial estrogen signaling is protective against lipopolysaccharide (LPS) induced model of overactive bladder

2015 OAB Bladder and Urgency Urinary Incontinence Research Grant Reviewers
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Adam P. Klausner, MD
Ariana L. Smith, MD
Christian O. Twiss, MD

2015 Neuromodulation Grants Winners

Pizarro-Berdichevky, Javier -- Cleveland Clinic
Non-head 1.5 Tesla MRI Compatibility with Sacral Neuromodulation

Welk, Blayne -- Western University
A Randomized Trial of Transcutaneous Nerve Stimulation for Neurogenic Bladder Patients

Malacarne, Dominique -- New York University Medical Center
Randomized Controlled Trial of PTNS versus Sham Efficacy in Treatment of Bladder Pain Syndrome

2015 Neuromodulation Grant Reviewers
Raul Ordorica, MD (Committee Chair)
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Jennifer Anger, MD, MPH
Kevin D. Benson, MD, MS
Toby C. Chai, MD
Educational Needs
The educational needs for the basic science portion of the meeting include information on (1) Pelvic floor Biomechanics, (2) Urinomics, (3) Update on the MAPP Network, (4) Fibrosis/Inflammation as it relates to Urological Diseases, and (5) Vascular Signaling in the Lower urinary Tract. Attendees of the SUFU program need to be aware of the latest updates and controversies in these basic research topics.

The educational needs for the clinical science portion of the meeting include topics of underactive bladder, pelvic pain, evaluation and treatment of neurogenic bladder conditions, urodynamic indications and interpretation, gynecological considerations in a FPMRS practice, optimal treatment of apical prolapse, post-prostatectomy incontinence, urethral stricture disease in men and women, advances in neuromodulation, evaluation and treatment of fecal incontinence, the role of suprapubic tube in patients with neurogenic bladder conditions, improving drug delivery in bladder chemodenervation, the role of min-sling in the treatment of stress incontinence, challenging overactive bladder cases, and treatment of refractory symptoms following mesh removal. Attendees of the SUFU program need to be aware of the latest updates and controversies in these common, clinical areas.

This meeting will facilitate interactions between clinicians, investigators and basic scientists regarding these topics. Attendees will benefit from the ongoing review of these topics, which will assist them in assessing and providing optimal patient care.

Educational Objectives
At the conclusion of the SUFU 2016 Winter Meeting, participants should be able to:

1. Describe the complexities of biomechanics of the pelvic floor.
2. Describe the topic of Urinomics as it applies to lower urinary tract dysfunction.
3. Identify the importance of the MAPP network in studying pelvic pain, and the latest research models used to understand pelvic pain.
4. Describe the role of fibrosis and inflammation in urological diseases.
5. Explain the role of vascular signaling in lower urinary tract function and dysfunction.
6. Describe the term “Underactive Bladder” and understand the treatment modalities being developed for this entity.
7. Assess the various causes, and potential solutions for pelvic pain in men and women.
8. Evaluate ways to build a multidisciplinary program to treat patients with pelvic pain.
9. Describe the controversies regarding the optimal evaluation of patients with neurogenic bladder conditions, and discuss the specific risks of urological surgeries in patients with these conditions.
10. Recognize the role of urodynamics and the difficulty in interpreting urodynamic studies when they contradict what a patient describes.
11. Explain the gynecological evaluation required prior to prolapse surgeries, as well as the optimal management of uterus, fallopian tubes and ovaries at the time of prolapse repair.
12. Describe the various surgical approaches to treatment of apical pelvic organ prolapse.
13. Describe the term “Congenitalism” and the approach to patients being transitioned from pediatric urological practices to adult care.
14. Describe the evaluation and treatment of women with sexual dysfunction.
15. Formulate the approach to post-prostatectomy incontinence, and how that approach might change if the first intervention was unsuccessful.
16. Describe the new neuromodulation treatments currently under investigation.
17. Describe the controversies related to the current diagnostic and treatment strategies for fecal incontinence.
18. Explain approaches to male and female urethral stricture disease.
19. Explain the controversy with regard to suprapubic tubes in patients with neurogenic bladder disease, and when this form of bladder management might be optimal.
20. Describe different strategies under investigation to improve delivery of chemodenervation agents in the bladder.
21. Evaluate techniques in pelvic floor physical therapy, particularly as it relates to uptraining and downtraining the pelvic floor.
22. Describe the impact of the ICD-10 on FPMRS practice and how your practice and documentation may need to be modified.
23. Describe the controversy regarding the use of single incision slings for stress urinary incontinence in women.
24. Describe the treatment approaches for women with refractory symptoms after removal of vaginal mesh for incontinence or pelvic organ prolapse.
**Category 1**
Creighton University Health Sciences Continuing Education designates this live activity for a maximum of 29.25 **AMA PRA Category 1 Credit(s)™.** Physicians should claim only credit commensurate with the extent of their participation in this activity.

AAPA accepts AMA category 1 credit for the PRA from organizations accredited by ACCME.

**Nurse CE**
The Creighton University Health Sciences Continuing Education designates this activity for 29.25 contact hours for nurses. Nurses should claim only credit commensurate with the extent of their participation in the activity.

**Nurses licensed in Iowa and California:** This activity was planned and developed in accordance with the continuing education standards of the American Nurses Credentialing Center (ANCC). The Iowa Board of Nursing and the California Board of Nursing will honor ANCC continuing education credits for face-to-face programs held outside Iowa and California, or for ANCC-approved online recorded courses taken in a self-study format.

**Accreditation Statement:**
This activity has been planned and implemented by Creighton University Health Sciences Continuing Education (HSCE) and the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU) for the advancement of patient care. Creighton University Health Sciences Continuing Education is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing education for the healthcare team.
### Wednesday, February 24, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Location</th>
<th>Speaker(s)</th>
</tr>
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<tbody>
<tr>
<td>12:05 p.m. – 1:30 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
<td>Chamber II &amp; IV, Mayor’s Suite Level</td>
<td>Sacrocolpopexy and Transvaginal Mesh: A Critical Assessment for Grades 3-4 POP, Including an Update on the FDA Up Classification of TVM</td>
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<td>Andrew Cassidenti, MD</td>
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<td>St. Joseph's Hospital</td>
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### Thursday, February 25, 2016

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<th>Event Description</th>
<th>Location</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>11:30 a.m. – 1:00 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
<td>Chamber II &amp; IV, Mayor’s Suite Level</td>
<td>Moving Patients Along the Overactive Bladder Treatment Pathway</td>
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<td>Howard Goldman, MD</td>
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<td>Cleveland Clinic Foundation</td>
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<td>David Sussman, DO</td>
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<td>Rowan University School of Osteopathic Medicine</td>
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### Friday, February 26, 2016

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<tr>
<td>11:30 a.m. – 1:00 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
<td>Chamber II &amp; IV, Mayor’s Suite Level</td>
<td>Putting Data into Practice – Care Pathways, Sacral &amp; Tibial Neuromodulation</td>
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<td>Kenneth Peters, MD</td>
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<td>Harriette Scarpero, MD</td>
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<td>Associated Urologists of Nashville</td>
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<td>Steven Siegel, MD</td>
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<td>Metro Urology</td>
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<td>Woodbury, Minnesota</td>
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MAYOR SUITE
SECOND LEVEL
### General Meeting Information

#### Registration/Information Desk Hours
*Location: Roosevelt Foyer, Mezzanine Level*

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Tuesday, February 23</td>
<td>11:00 a.m. – 5:30 p.m.</td>
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<tr>
<td>Wednesday, February 24</td>
<td>7:00 a.m. – 6:30 p.m.</td>
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<td>Thursday, February 25</td>
<td>6:30 a.m. – 5:30 p.m.</td>
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<td>Friday, February 26</td>
<td>6:00 a.m. – 6:00 p.m.</td>
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<tr>
<td>Saturday, February 27</td>
<td>6:30 a.m. – 12:00 p.m.</td>
</tr>
</tbody>
</table>

#### Exhibit Hall Hours
*Location: Crescent City Ballroom, Mezzanine Level*

**Wednesday, February 24, 2016**
- Welcome Reception with Industry Partners: 7:00 p.m. – 8:30 p.m.
- Thursday, February 25, 2016: 7:00 a.m. – 4:00 p.m.
- Friday, February 26, 2016: 7:00 a.m. – 4:00 p.m.
- Cocktail Hour and Awards Reception: 6:00 p.m. – 7:30 p.m.

#### Speaker Ready Desk Hours
*Location: Napoleon Room, Mezzanine Level*

<table>
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</table>

#### Registration Fee Includes:
- One ticket to Welcome Reception
- One ticket to Awards Reception
- Entry to scientific sessions
- Program Materials

SUFU has a green initiative, so instead of cutting down trees to make paper program books, we are cutting down on the use of paper and going electronic, which also cuts costs for the society as a whole. A link to the electronic version of the program book is available through [http://sufuorg.com/2016ProgramBook](http://sufuorg.com/2016ProgramBook).

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No attendee/visitor at the 2016 SUFU Winter Meeting may record, film, tape, photograph, interview, or use any other such media during any presentation, display, or exhibit without the express, advance approval of the SUFU Executive Director. This policy applies to all SUFU members, non-members, guests, and exhibitors, as well as members of the print, online, or broadcast media.
One ticket to each evening function is included in attendee and spouse registration fees.

Welcome Reception
Date: Wednesday, February 24, 2016
Time: 7:00 p.m. – 8:30 p.m.
Location: Crescent City Ballroom, Mezzanine Level
Attire: Business
Description: Enjoy a beverage and light hors d'oeuvres as you meet with industry partners in the exhibit hall.

Cocktail Hour and Awards Reception
Date: Friday, February 26, 2016
Time: 6:00 p.m. – 7:30 p.m.
*Award Ceremony to start promptly at 6:15 p.m.
Location: Crescent City Ballroom, Mezzanine Level
Attire: Business
Description: Finish off the Winter Meeting with an evening of cocktails, mingling and award presentations in the exhibit hall.
The location of the SUFU 2016 Annual Winter Meeting is one of the United States’ most fascinating cities. French influence, Southern tradition and African heritage have combined to create a culture entirely unique in its history, food and music. From voodoo to the bayou, jazz and Cajun food on Bourbon Street, New Orleans offers an experience unlike any other. The average temperature in New Orleans for February is 65°F with a low of 46°F.

Taxicabs:
A cab ride costs $33.00 from the airport to the Central Business District (CBD) for one or two persons and $14.00 (per passenger) for three or more passengers. Pick-up is on the lower level, outside the baggage claim area. There may be an additional charge for extra baggage. Taxis are required to offer a credit card payment option.

Airport Shuttle:
Shuttle service is available from the airport to the hotels in the CBD for $20.00 (per person, one-way) or $38.00 (per person, round-trip). Three bags per person are allowed on the shuttle. Call (866) 596-2699 or (504) 522-3500 for more details or to make a reservation. Advance reservations are required 48 hours prior to travel for all ADA accessible transfers. Please call in advance of your travel date for the specially-equipped shuttle to be reserved. For group reservations of 50 or more people please dial (866) 596-2699. Ticket booths are located on the lower level in the baggage claim area: www.airportshuttleneworleans.com.

Airport Limousines:
Airport Limousine is the official limousine service for Louis Armstrong New Orleans International Airport. Convenient kiosks are located in the baggage claim area and no hassle curb side pickups are available. Rates begin at $58.00 for one or two passengers: http://www.airportlimousineneworleans.com/index.html.

Rental Car Information
Avis Rent-A-Car is the official rental car company for the SUFU 2016 Winter Meeting. For reservations, please call (800) 331-1600, and use the code “J901055” to receive the discounted rates.

Parking
The charge for overnight parking for registered hotel guests is $44.00, plus tax. Please note the hotel has two entrances, one on Baronne Street and one on Roosevelt Way. Valet parking is only available from the Roosevelt Way entrance.

Suggested Dining
Café du Monde
800 Decatur St.
(504) 581-2914
Casual
Breakfast, Late Night dining (call ahead for hours)
Since 1862, this has been the original French Market coffee stand serving café au lait and beignets.

Galatoire’s
209 Bourbon St.
(504) 525-2021
Dressy (jacket may be required)
Lunch, Dinner
Enjoy traditional French Creole cuisine in one of New Orleans’ most elegant and festive restaurants.

Family & Children’s Activities
Audubon Aquarium of the Americas
Phone: (504) 581-4629
Walk through a 30-foot-long Caribbean Reef tunnel and discover more than 15,000 water-dwelling creatures.

Steamboat Natchez
Phone: (504) 586-8777
View the New Orleans skyline aboard a classic Mississippi Riverboat with traditional New Orleans jazz.

More Activities
The National WWII Museum
New Orleans Museum of Art
City Park
Audubon Park
French Market
Jackson Square
Voodoo Museum
Visit the concierge for more details at www.therooseveltneworleans.com.
SUFU at the AUA 2016  
May 6, 2016  
12:30 PM- 4:30 PM  
Room 20-D  
San Diego Convention Center  
San Diego, California

SUFU Research Foundation Resident Preceptorship 2016  
August 12 – 14, 2016  
The Fairmont Chicago Millennium Park  
Chicago, Illinois

SUFU 2017 Winter Meeting  
February 28 – March 4, 2017  
Hyatt Regency Scottsdale Resort & Spa at Gainey Ranch  
Scottsdale, Arizona
TUESDAY, FEBRUARY 23, 2016

OVERVIEW

11:00 a.m. - 5:30 p.m. Registration/Information Desk Open
Location: Roosevelt Foyer, Mezzanine Level

11:00 a.m. - 5:00 p.m. Speaker Ready Desk Hours
Location: Napoleon Room, Mezzanine Level

GENERAL SESSION

1:00 p.m. - 2:30 p.m. Panel 1: Biomechanics of the Pelvic Floor
Moderator: Margot S. Damaser, PhD

- Imaging of Implanted Mesh
  Panelist: Larissa V. Rodriguez, MD

- Mesh and Biomechanics
  Panelist: Pamela A. Moalli, MD, PhD

- Hope and Reality of Tissue Engineering in the Lower Urinary Tract
  Panelist: J. K. Williams, DVM

2:30 p.m. - 2:40 p.m. Q & A

2:40 p.m. - 3:30 p.m. Keynote Speaker: How Peripheral Denervation May Explain Detrusor Overactivity with Impaired Contractility
Speaker: Marcus Drake, MA, DM, FRCS (Urol)

3:30 p.m. - 3:40 p.m. Q & A

3:40 p.m. - 3:55 p.m. Break

3:55 p.m. - 5:25 p.m. Panel 2: Urinomics
Moderator: Georgi V. Petkov, PhD

- NIDDK/NIH - Introduction - Why is NIDDK Interested?
  Panelist: Tamara G. Bavendam, MD, MS

- Human Urinary Composition - Role in Bacterial Infection
  Panelist: Jeffrey P. Henderson, MD, PhD

- New Approaches in Urinomics
  Panelist: Richard S. Lee, MD

5:25 p.m. - 5:35 p.m. Q & A

5:35 p.m. - 5:50 p.m. Break

5:50 p.m. - 7:50 p.m. *Basic Science Poster Session I (Non-Moderated)
Judges: Matthew O. Fraser, PhD
        Adam P. Klausner, MD

*Not CME Accredited

Poster #BS1 VAGINAL MECHANICALLY-TRIGGERED ATP SIGNALING IS IMPAIRED IN OVARIECTOMIZED MICE
Presented By: Jessica Harroche

Poster #BS2 RABBIT BLADDER DETRUSOR SMOOTH MUSCLE (RDSM) IS A VISCOELASTIC-PLASTIC MATERIAL
Presented By: Christopher Neal

Poster #BS3 SLOWLY CYCLING ACTOMYOSIN CROSSBRIDGES (XBS) IN "RESTING" DETERUSOR SMOOTH MUSCLE (DSM) PERMITS SMART DAMPER-STYLE BLADDER BIOMECHANICAL BEHAVIOR
Presented By: Eugene Bell

Poster #BS4 URETHRAL AND DETERUSOR DYSFUNCTION ARE DETERMINED BY THE SEVERITY OF A CONTUSION-SCI IN FEMALE RATS
Presented By: Alvaro Munoz

Poster #BS5 THE ROLES OF EXTRACELLULAR SIGNAL-REGULATED KINASE SUBTYPE 1 (ERK1) IN MODULATING BLADDER PAIN AND PELVIC PAIN
Presented By: Henry Lai, MD
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

Poster #BS6
EFFECT OF EARLY SACRAL AND PUDENDAL NEUROMODULATION ON THE LOWER URINARY TRACT IN SCI MINIPIGS
Presented By: Elena Foditsch

Poster #BS7
A NEW NON-SURGICAL TECHNIQUE FOR A MINIMALLY-INVASIVE COMPLETE SPINAL CORD LesION IN MINIPIGS
Presented By: Elena Foditsch

Poster #BS8
RECOVERY OF BLADDER FULLNESS SENSATION THROUGH THE REINNERVATED NEURONAL PATHWAY CREATED BY FEMORAL OR GENITOFEMORAL NERVE TRANSFER TO ANTERIOR VESICAL NERVE BRANCHES IN THE DECENTRALIZED CANINE BLADDER
Presented By: Mary Barbe

Poster #BS9
OAB WITHOUT AN “OVERACTIVE BLADDER”
Presented By: James Hokanson

Poster #BS10
LONG TERM PERSISTENCE OF INCONTINENCE IN THREE STRESS INCONTINENCE RAT MODELS: VAGINAL DISTENSION, URETHROLYSIS, AND PUBO-URETHRAL LIGAMENT INJURY
Presented By: Bertha Chen

Poster #BS11
SYNCHRONIZED ELECTROMYOGRAPHIC CHARACTERIZATION OF THE LOWER URINARY TRACT IN NORMAL RATS: EFFECTS OF INTRAVESICAL P2X3R INHIBITION
Presented By: Alvaro Munoz

Poster #BS12
MICRORNAs AS POTENTIAL BIOMARKERS TO PREDICT RISK OF URINARY RETENTION FOLLOWING INTRAETRUSOR ONABOTULINUMTOXIN-A INJECTION
Presented By: Christopher Cermansky

Poster #BS13
IDENTIFICATION OF A DIVERSE FUNGAL COMMUNITY (“MYCOBIOME”) IN THE NORMAL FEMALE HUMAN LOWER URINARY TRACT
Presented By: A. Lenore Ackerman

Poster #BS14
LACTOBACILLUS IN THE URINARY MICROBIOME OF WOMEN WITH STRESS INCONTINENCE
Presented By: Bhumy Dave

Poster #BS15
A SINGLE INSTITUTION REVIEW OF PATIENTS WITH NEPHROGENIC ADENOMA
Presented By: Yooni Yi

Poster #BS16
LATE INTERMITTENT SACRAL NEUROSTIMULATION SIGNIFICANTLY INCREASES BLADDER CAPACITY
Presented By: Bradley Potts

Poster #BS17
BRAIN RESPONSES TO BLADDER FILING IN HEALTHY ADULTS: A META-ANALYSIS OF NEUROIMAGING STUDIES
Presented By: Steven Weissbart

Poster #BS18
INOSINE ATTENUATES SPONTANEOUS AND EVOKED ACTIVITY IN NEUROGENIC BLADDER THROUGH AN ADENOSINE RECEPTOR-MEDIATED PATHWAY
Presented By: Claire Doyle

WEDNESDAY, FEBRUARY 24, 2016

OVERVIEW

7:00 a.m. - 6:30 p.m. Registration/Information Desk Open
Location: Roosevelt Foyer, Mezzanine Level

7:00 a.m. - 5:30 p.m. Speaker Ready Desk Hours
Location: Napoleon Room, Mezzanine Level

7:30 a.m. - 8:30 a.m. Breakfast
Location: Chamber II & IV, Mayor’s Suite Level

7:00 p.m. - 8:30 p.m. Welcome Reception in Exhibit Hall
Location: Crescent City Ballroom, Mezzanine Level

GENERAL SESSION

8:30 a.m. - 8:45 a.m. Welcome
President: Eric S. Rovner, MD
Program Chair: Gary E. Lemack, MD
Committee Chair: Lori A. Birder, PhD
Co-Committee Chair: Adam P. Klausner, MD
### 2016 Scientific Program

All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

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<thead>
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<th>Time</th>
<th>Session</th>
<th>Moderator/Panelist</th>
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<td>8:45 a.m. - 10:20 a.m.</td>
<td>Panel 3: Update on the MAPP Network</td>
<td>Moderator: Larissa V. Rodriguez, MD</td>
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<td>Clinical Phenotyping in MAPP Network</td>
<td>Panelist: J. Quentin Clemens, MD</td>
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<td>Neuroimaging Findings</td>
<td>Panelist: Jason J. Kutch, PhD</td>
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<td>Animal Models of UCPS in MAPP</td>
<td>Panelist: H. Henry Lai, MD</td>
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<td>Biomarkers and Microbiome in UCPS</td>
<td>Panelist: Michel A. Pontari, MD</td>
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<tr>
<td>10:20 a.m. - 10:30 a.m.</td>
<td>Q &amp; A</td>
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<td>10:30 a.m. - 10:45 a.m.</td>
<td>Break</td>
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<tr>
<td>10:45 a.m. - 11:45 a.m.</td>
<td>Keynote Speaker: An Academic Pharmacologist in Commercial Drug Development. Experience From α3-adrenoceptor Agonist Development</td>
<td>Speaker: Martin Michel, PhD</td>
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<td>11:45 a.m. - 11:55 a.m.</td>
<td>Q &amp; A</td>
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<tr>
<td>11:55 a.m. - 12:05 p.m.</td>
<td>2016 Basic Science Prize Essay Award Presentation</td>
<td>Moderator: Michael R. Ruggieri, Sr., PhD</td>
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<td>Winner: Georgi Petkov, PhD</td>
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<td></td>
<td>#BS26 SELECTIVE PHARMACOLOGICAL INHIBITION OF PHOSPHODIESTERASE TYPE 1: AS A NOVEL APPROACH TO CONTROL HUMAN DETRUSOR SMOOTH MUSCLE FUNCTION</td>
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<tr>
<td>12:05 p.m. - 1:30 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
<td>Location: Chamber II &amp; IV, Mayor's Suite Level</td>
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<td>1:30 p.m. - 5:45 p.m.</td>
<td>*Fellows Forum</td>
<td>Location: Chamber III, Mayor's Suite Level</td>
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<td><em>(For Participating Fellows Only)</em></td>
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<tr>
<td>5:30 p.m. - 6:30 p.m.</td>
<td>Fellowship Program Director's Meeting</td>
<td>Location: Chamber II, Mayor's Suite Level</td>
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<tr>
<td>1:30 p.m. - 3:00 p.m.</td>
<td>Panel 4: Fibrosis/Inflammation and Urological Diseases</td>
<td>Moderator: Matthew O. Fraser, PhD</td>
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<td></td>
<td>Inflammation and Fibrosis</td>
<td>Panelist: Jeremy Duffield, MD PhD FRCP</td>
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<td>Urinary Obstruction and Fibrosis</td>
<td>Panelist: Jill A. Macoska, PhD</td>
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<td>Imaging to Study the ECM Changes in Fibrosis and Connective Tissue Diseases</td>
<td>Panelist: Paul Campagnola, PhD</td>
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<td>3:00 p.m. - 3:10 p.m.</td>
<td>Q &amp; A</td>
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<tr>
<td>3:10 p.m. - 4:00 p.m.</td>
<td>Panel 5: Vascular Signaling in the Lower Urinary Tract</td>
<td>Moderator: Toby C. Chai, MD</td>
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<td>Potential Role of Bladder Lamina Propria Vascular Endothelial Cells – Modulation of Afferent Signaling?</td>
<td>Panelist: Toby C. Chai, MD</td>
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<td></td>
<td>Pathophysiologic and Basic Mechanisms Controlling Microvascular Remodeling</td>
<td>Panelist: Ira M. Hernani, PhD</td>
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<td>The Microcirculation and Inflammation</td>
<td>Panelist: D. Neil Granger, PhD</td>
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<td>4:00 p.m. - 4:10 p.m.</td>
<td>Q &amp; A</td>
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<tr>
<td>4:10 p.m. - 4:25 p.m.</td>
<td>Break</td>
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</table>
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. 
Speakers and times are subject to change

<table>
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<tr>
<th>Time</th>
<th>Event</th>
<th>Judges</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>4:25 p.m.</td>
<td>*Basic Science Poster Session II (Non-Moderated)</td>
<td>Christopher J. Chemansky, MD</td>
<td>Calvin Lee</td>
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<td>*Not CME Accredited</td>
<td>Tomas L. Griebling, MD, MPH</td>
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<td>4:25 p.m.</td>
<td>MODELING CATHETER FLOW RESISTANCE TO DETERMINE OPTIMAL SUPRAPUBIC</td>
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<td>TUBE DIMENSIONS</td>
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<td>Presented By: Calvin Lee</td>
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<td>4:25 p.m.</td>
<td>MEDICAL STUDENT ROBOTIC SIMULATOR PERFORMANCE DOES NOT CORRELATE</td>
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<td>WITH THEIR USMLE SCORES</td>
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<td>Presented By: Megan Griffin</td>
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<td>4:25 p.m.</td>
<td>EFFECT OF HUMAN CHORIONIC GONADOTROPHIN ON IN VITRO CONTRACTIONS</td>
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<td>OF STIMULATED DETRUSOR MUSCLE STRIPS OF FEMALE RATS</td>
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<td>Presented By: Diaa Riz</td>
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<td>4:25 p.m.</td>
<td>NON-STEROIDAL TISSUE-SELECTIVE ANDROGEN RECEPTOR MODULATORS (SARMS)</td>
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<td>INCREASE PELVIC FLOOR MUSCLE MASS IN FEMALE OVARIECTOMIZED MICE</td>
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<td>Presented By: Ramesh Narayanan</td>
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<td>4:25 p.m.</td>
<td>INTRAVESICAL ADMINISTRATION OF ONABOTULIMUN TOXIN-A FOR A SHORT</td>
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<td>PERIOD OF TIME IMPROVES BLADDER FUNCTION IN RATS WITH SPINAL CORD</td>
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<td>INJURY</td>
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<td>Presented By: Alvaro Munoz</td>
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<td>4:25 p.m.</td>
<td>LOCALIZED INHIBITION OF P2X7R IMPROVES GAP43 SPREADING, LOCOMOTION,</td>
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<td>AND BLADDER FUNCTION IN SCI RATS</td>
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<td>Presented By: Alvaro Munoz</td>
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<td>4:25 p.m.</td>
<td>NEUROPLIN 2 DELETION ENHANCES DETRUSOR CONTRACTILITY UNDER CONDITIONS</td>
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<td>OF BLADDER OUTLET OBSTRUCTION</td>
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<td>Presented By: Rosalyn Adam</td>
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<td>4:25 p.m.</td>
<td>SELECTIVE PHARMACOLOGICAL INHIBITION OF PHOSPHODIESTERASE TYPE-1 AS</td>
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<td>A NOVEL APPROACH TO CONTROL HUMAN DETRUSOR SMOOTH MUSCLE FUNCTION</td>
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<td>Presented By: Georgi Petkov</td>
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<td>4:25 p.m.</td>
<td>TRPV4 AND SK3 CHANNELS IN DETRUSOR PDGFRA+ CELLS CONTROL BLADDER</td>
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<td>FILLING</td>
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<td>Presented By: Haeyeong Lee</td>
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<td>4:25 p.m.</td>
<td>LOW AMPLITUDE RHYTHMIC CONTRACTIONS IN THE HUMAN DETRUSOR</td>
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<td>Presented By: Andrew Colhoun</td>
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<td>4:25 p.m.</td>
<td>SEX DIFFERENCES IN BLADDER DYSFUNCTION IN RESPONSE TO ENTERIC</td>
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<td>NEURONAL NFKB OVERACTIVATION AND EXPERIMENTALLY INDUCED COLITIS IN</td>
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<td>MICE</td>
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<td>Presented By: Ali Braverman</td>
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<td>4:25 p.m.</td>
<td>IN VIVO INTEGRATION AND MECHANISM OF ACTION OF SMOOTH MUSCLE CELL</td>
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<td>PRECURSORS DERIVED FROM HUMAN PLURIPOTENT STEM CELLS</td>
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<td>Presented By: Bertha Chen</td>
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<td>4:25 p.m.</td>
<td>CAVEOLAE-MEDIATED REGULATION OF ALPHA-1-ADRENOCEPTOR SUBTYPES IN</td>
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<td>OVERACTIVE BLADDERS FROM SPONTANEOUSLY HYPERTENSIVE RATS</td>
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<td>Presented By: Vivian Cristofaro</td>
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<td>4:25 p.m.</td>
<td>MESH WOVEN FROM PURE COLLAGEN THREADS FOR TREATMENT OF STRESS</td>
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<td>URINARY INCONTINENCE</td>
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<td>Presented By: Ahmad Khalifa</td>
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<td>4:25 p.m.</td>
<td>PRECURSOR OF SMOOTH MUSCLE CELLS DERIVED FROM HUMAN PLURIPOTENT STEM</td>
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<td>CELLS FOR TREATMENT OF STRESS URINARY INCONTINENCE</td>
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<td>Presented By: Bertha Chen</td>
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<td>4:25 p.m.</td>
<td>ADIPOSE DERIVED MESENCHYMAL STEM CELL CONDITIONED MEDIA: A</td>
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<td>POTENTIAL INNOVATIVE ANTIMICROBIAL THERAPEUTIC FOR RECURRENT UTI</td>
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<td>Presented By: Zhina Sadeghi</td>
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<td>4:25 p.m.</td>
<td>BLADDER MUCOSA RESPONDS DIFFERENTLY THAN DETRUSOR SMOOTH MUSCLE</td>
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<td>TO DEPOLARIZING STIMULUS – A NEW BLADDER REFLEX?</td>
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<td>Presented By: Andrea Russo</td>
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<td>4:25 p.m.</td>
<td>ONABOTULIMUN TOXIN’S EFFECT ON KCL INDUCED CONTRACTIONS OF PORCINE</td>
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<td></td>
<td>AND RAT BLADDERS</td>
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<td></td>
<td>Presented By: Andrea Russo</td>
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<tr>
<td>4:25 p.m.</td>
<td>SUCCINATE MODULATES BLADDER CONTRACTILITY VIA PROSTAGLANDIN E2</td>
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<td></td>
<td>SECRETION.</td>
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<td></td>
<td>Presented By: Monica Velasquez Flores</td>
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</tbody>
</table>
### THURSDAY, FEBRUARY 25, 2016

**OVERVIEW**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 a.m. - 5:30 p.m.</td>
<td>Registration/Information Desk Open</td>
<td>Roosevelt Foyer, Mezzanine Level</td>
</tr>
<tr>
<td>6:30 a.m. - 5:30 p.m.</td>
<td>Speaker Ready Room Hours</td>
<td>Napoleon Room, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m. - 7:45 a.m.</td>
<td>Breakfast in the Exhibit Hall</td>
<td>Crescent City Ballroom, Mezzanine Level</td>
</tr>
<tr>
<td>7:00 a.m. - 8:00 a.m.</td>
<td>Residents and Fellows Breakfast</td>
<td>Chamber II &amp; IV, Mayor's Suite Level</td>
</tr>
<tr>
<td>7:00 a.m. - 4:00 p.m.</td>
<td>Exhibit Hall Open</td>
<td>Crescent City Ballroom, Mezzanine Level</td>
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**GENERAL SESSION**

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<tr>
<th>Time</th>
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<th>Speaker</th>
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<tbody>
<tr>
<td>7:55 a.m. - 8:00 a.m.</td>
<td>Introduction</td>
<td>Gary E. Lemack, MD</td>
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<tr>
<td>8:00 a.m. - 8:10 a.m.</td>
<td>Eulogy - William D. Steers, MD</td>
<td>Toby C. Chai, MD</td>
</tr>
<tr>
<td>8:10 a.m. - 8:50 a.m.</td>
<td>Panel: Underactive Bladder</td>
<td>Roger R. Dmochowski, MD, MMHC, FACS</td>
</tr>
<tr>
<td>8:50 a.m. - 9:30 a.m.</td>
<td>Panel: Pelvic Pain: Defining Causes, Providing Solutions</td>
<td>Deborah R. Erickson, MD</td>
</tr>
<tr>
<td>9:30 a.m. - 9:45 a.m.</td>
<td>Presidential Address</td>
<td>Eric S. Rovner, MD</td>
</tr>
<tr>
<td>9:45 a.m. - 10:15 a.m.</td>
<td>Break - Visit with Exhibitors</td>
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</tr>
<tr>
<td>10:15 a.m. - 10:55 a.m.</td>
<td>Panel: Guidelines for the Care of Patients with Neurogenic Bladder Conditions</td>
<td>John T. Stoffel, MD</td>
</tr>
<tr>
<td>10:55 a.m. - 11:25 a.m.</td>
<td>Urodynamics Mismatch - Should We Listen to the Study, or the Patient?</td>
<td>Victor W. Nitti, MD</td>
</tr>
<tr>
<td>11:30 a.m. - 1:00 p.m.</td>
<td>Industry Satellite Symposium Luncheon</td>
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**OVERVIEW**

All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted.
Speakers and times are subject to change.
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### CONCURRENT POSTER/PODIUM SESSIONS

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<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Moderators</th>
<th>Presenters</th>
<th>Title</th>
<th>Poster or Panel #</th>
<th>Presented By</th>
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<tr>
<td>1:00 p.m.</td>
<td>IC/Pelvic Pain/Geriatrics/BPH - Podium Session</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Cristiano Gomes, MD, Christopher K. Payne, MD</td>
<td>Priyanka Gupta</td>
<td>CONFIRMATION OF TRANSVAGINAL PELVIC FLOOR MUSCLE INJECTION TEMPLATE: A CADAVER STUDY</td>
<td>#1</td>
<td>Priyanka Gupta</td>
</tr>
<tr>
<td>1:10 p.m.</td>
<td>MYOFASCIAL TRIGGER POINT DRY NEEDLING FOR PELVIC PAIN AND URINARY SYMPTOMS: AN INITIAL SINGLE CENTER EXPERIENCE</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Matthew Nielsen</td>
<td>Matthew Nielsen</td>
<td>MYOFASCIAL TRIGGER POINT DRY NEEDLING FOR PELVIC PAIN AND URINARY SYMPTOMS: AN INITIAL SINGLE CENTER EXPERIENCE</td>
<td>#2</td>
<td>Matthew Nielsen</td>
</tr>
<tr>
<td>1:20 p.m.</td>
<td>EFFICACY OF ULTRA-VIOLET LIGHT ON BACTERIAL GROWTH AND BIOFILM PRODUCTION OF SELECTED STRAINS OF UROPATHOGENIC ESCHERICHIA COLI AND PSEUDOMONAS AERUGINOSA</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Philippe E. Zimmern</td>
<td>Philippe E. Zimmern</td>
<td>EFFICACY OF ULTRA-VIOLET LIGHT ON BACTERIAL GROWTH AND BIOFILM PRODUCTION OF SELECTED STRAINS OF UROPATHOGENIC ESCHERICHIA COLI AND PSEUDOMONAS AERUGINOSA</td>
<td>#3</td>
<td>Philippe E. Zimmern</td>
</tr>
<tr>
<td>1:30 p.m.</td>
<td>SAFETY AND PERFORMANCE OF A WIRELESS IMPLANTABLE TIBIAL NERVE STIMULATOR DEVICE, FOR THE TREATMENT OF PATIENTS WITH OVERACTIVE BLADDER (OAB)</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>John Heesakkers</td>
<td>John Heesakkers</td>
<td>SAFETY AND PERFORMANCE OF A WIRELESS IMPLANTABLE TIBIAL NERVE STIMULATOR DEVICE, FOR THE TREATMENT OF PATIENTS WITH OVERACTIVE BLADDER (OAB)</td>
<td>#4</td>
<td>John Heesakkers</td>
</tr>
<tr>
<td>1:40 p.m.</td>
<td>MINIMALLY INVASIVE PROSTATIC URETHRAL LIFT (PUL) EFFICACIOUS IN A LARGE PERCENTAGE OF POTENTIAL TURP CANDIDATES: MID-TERM RESULTS</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Karl-Dietrich Sievert</td>
<td>Karl-Dietrich Sievert</td>
<td>MINIMALLY INVASIVE PROSTATIC URETHRAL LIFT (PUL) EFFICACIOUS IN A LARGE PERCENTAGE OF POTENTIAL TURP CANDIDATES: MID-TERM RESULTS</td>
<td>#5</td>
<td>Karl-Dietrich Sievert</td>
</tr>
<tr>
<td>1:50 p.m.</td>
<td>BASELINE FUNCTIONAL STATUS PREDICTS POSTOPERATIVE TREATMENT FAILURE IN NURSING HOME RESIDENTS UNDERGOING TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Anne Suskind</td>
<td>Anne Suskind</td>
<td>BASELINE FUNCTIONAL STATUS PREDICTS POSTOPERATIVE TREATMENT FAILURE IN NURSING HOME RESIDENTS UNDERGOING TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)</td>
<td>#6</td>
<td>Anne Suskind</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>THE IMPACT OF BODY COMPOSITION AND MUSCLE FUNCTION ON URINARY INCONTINENCE IN OLDER WOMEN: RESULTS FROM THE HEALTH, AGING AND BODY COMPOSITION STUDY</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Anne Suskind</td>
<td>Anne Suskind</td>
<td>THE IMPACT OF BODY COMPOSITION AND MUSCLE FUNCTION ON URINARY INCONTINENCE IN OLDER WOMEN: RESULTS FROM THE HEALTH, AGING AND BODY COMPOSITION STUDY</td>
<td>#7</td>
<td>Anne Suskind</td>
</tr>
<tr>
<td>2:10 p.m.</td>
<td>ONABOTULINUMTOXINA THERAPY FOR MANAGEMENT OF OVERACTIVE BLADDER IN ELDERLY POPULATIONS: EVALUATION OF OUTCOMES AND ADVERSE EVENTS</td>
<td>The Roosevelt Ballroom, Mezzanine Level</td>
<td>Neha Talreja</td>
<td>Neha Talreja</td>
<td>ONABOTULINUMTOXINA THERAPY FOR MANAGEMENT OF OVERACTIVE BLADDER IN ELDERLY POPULATIONS: EVALUATION OF OUTCOMES AND ADVERSE EVENTS</td>
<td>#8</td>
<td>Neha Talreja</td>
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<tr>
<th>Time</th>
<th>LUTS/Voiding Dysfunction/Neurogenic Bladder - Moderated Poster Session</th>
<th>Waldorf Astoria Ballroom, Mezzanine Level</th>
<th>Jerry G. Blaivas, MD, Anne M. Suskind, MD</th>
<th>Travis Price</th>
<th>PATIENT PERCEPTION OF URINARY TRACT INFECTION IS ASSOCIATED WITH DECREASED URINARY MICROBIAL DIVERSITY</th>
<th>#M1</th>
<th>Travis Price</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Detecting clinically relevant microorganisms: we can do better</td>
<td></td>
<td>Travis Price</td>
<td>Travis Price</td>
<td>DETECTING CLINICALLY RELEVANT MICROORGANISMS: WE CAN DO BETTER</td>
<td>#M2</td>
<td>Travis Price</td>
</tr>
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<td></td>
<td>Same day urogynecology surgery: rates of acute postoperative urinary retention when using spinal versus general anesthesia</td>
<td></td>
<td>Eric Hurtado</td>
<td>Eric Hurtado</td>
<td>SAME DAY UROGYNECOLOGY SURGERY: RATES OF ACUTE POSTOPERATIVE URINARY RETENTION WHEN USING SPINAL VERSUS GENERAL ANESTHESIA</td>
<td>#M3</td>
<td>Eric Hurtado</td>
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<td></td>
<td>Does post-void residual after botox injection predict treatment response?</td>
<td></td>
<td>Lauren Wood</td>
<td>Lauren Wood</td>
<td>DOES POST-VOID RESIDUAL AFTER BOTOX INJECTION PREDICT TREATMENT RESPONSE?</td>
<td>#M4</td>
<td>Lauren Wood</td>
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<td></td>
<td>An office guide to obtaining urodynamics (UDS) in women with multiple sclerosis (MS)</td>
<td></td>
<td>Himanshu Aggarwal</td>
<td>Himanshu Aggarwal</td>
<td>AN OFFICE GUIDE TO OBTAINING URODYNAMICS (UDS) IN WOMEN WITH MULTIPLE SCLEROSIS (MS)</td>
<td>#M5</td>
<td>Himanshu Aggarwal</td>
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<td></td>
<td>The impact of pontine disease on lower urinary tract symptoms in patients with multiple sclerosis</td>
<td></td>
<td>Steven Weissbart</td>
<td>Steven Weissbart</td>
<td>THE IMPACT OF PONTINE DISEASE ON LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH MULTIPLE SCLEROSIS</td>
<td>#M6</td>
<td>Steven Weissbart</td>
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<td>Higher neural correlates at full urge in patients with multiple sclerosis with neurogenic bladder dysfunction via concurrent functional magnetic resonance imaging (FMRI) and urodynamic testing (UDS)</td>
<td></td>
<td>Rose Khavari</td>
<td>Rose Khavari</td>
<td>HIGHER NEURAL CORRELATES AT FULL URGE IN PATIENTS WITH MULTIPLE SCLEROSIS WITH NEUROGENIC BLADDER DYSFUNCTION VIA CONCURRENT FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) AND URODYNAMIC TESTING (UDS)</td>
<td>#M7</td>
<td>Rose Khavari</td>
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<td>Serial botulinum toxin injections for neurogenic bladder: 4 year urodynamic outcomes</td>
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<td>Alexandra Rehfuss</td>
<td>Alexandra Rehfuss</td>
<td>SERIAL BOTULINUM TOXIN INJECTIONS FOR NEUROGENIC BLADDER: 4 YEAR URODYNAMIC OUTCOMES</td>
<td>#M8</td>
<td>Alexandra Rehfuss</td>
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<td>Predictors of long-term bladder management in spinal cord injury patients - upper extremity function matters most</td>
<td></td>
<td>Christopher Elliott</td>
<td>Christopher Elliott</td>
<td>PREDICTORS OF LONG-TERM BLADDER MANAGEMENT IN SPINAL CORD INJURY PATIENTS - UPPER EXTREMITY FUNCTION MATTERS MOST</td>
<td>#M9</td>
<td>Christopher Elliott</td>
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<td>#M26</td>
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### LUTS/Voiding Dysfunction/Neurogenic Bladder - Moderated Poster Session

| Poster #M1 | PATIENT PERCEPTION OF URINARY TRACT INFECTION IS ASSOCIATED WITH DECREASED URINARY MICROBIAL DIVERSITY | Travis Price
| Poster #M2 | DETECTING CLINICALLY RELEVANT MICROORGANISMS: WE CAN DO BETTER | Travis Price
| Poster #M3 | SAME DAY UROGYNECOLOGY SURGERY: RATES OF ACUTE POSTOPERATIVE URINARY RETENTION WHEN USING SPINAL VERSUS GENERAL ANESTHESIA | Eric Hurtado
| Poster #M4 | DOES POST-VOID RESIDUAL AFTER BOTOX INJECTION PREDICT TREATMENT RESPONSE? | Lauren Wood
| Poster #M5 | AN OFFICE GUIDE TO OBTAINING URODYNAMICS (UDS) IN WOMEN WITH MULTIPLE SCLEROSIS (MS) | Himanshu Aggarwal
| Poster #M6 | THE IMPACT OF PONTINE DISEASE ON LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH MULTIPLE SCLEROSIS | Steven Weissbart
| Poster #M7 | HIGHER NEURAL CORRELATES AT FULL URGE IN PATIENTS WITH MULTIPLE SCLEROSIS WITH NEUROGENIC BLADDER DYSFUNCTION VIA CONCURRENT FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) AND URODYNAMIC TESTING (UDS) | Rose Khavari
| Poster #M8 | SERIAL BOTULINUM TOXIN INJECTIONS FOR NEUROGENIC BLADDER: 4 YEAR URODYNAMIC OUTCOMES | Alexandra Rehfuss
| Poster #M9 | PREDICTORS OF LONG-TERM BLADDER MANAGEMENT IN SPINAL CORD INJURY PATIENTS - UPPER EXTREMITY FUNCTION MATTERS MOST | Christopher Elliott
| Poster #M26 | WITHDRAWN |                     |
1:00 p.m. - 2:20 p.m.  *LUTS/Voiding Dysfunction/Neurogenic Bladder - Non-Moderated Poster Session  
*Not CME Accredited

| Poster #NM1 | TO DESIGN A SIMPLE OFFICE-BASED METHOD TO INTERPRET FREE UROFLOWMETRIES (FF) IN THE FOLLOW-UP OF WOMEN AT RISK OF DEVELOPING OUTFLOW OBSTRUCTION OVER TIME AFTER SURGICAL INTERVENTIONS  
Presented By: Francoise Valentini |
| Poster #NM2 | MODELED ANALYSIS OF THE URETHRAL RESISTANCE TO DILATION (URD) IN WOMEN  
Presented By: Francoise Valentini |
| Poster #NM3 | EVALUATION OF DETRUSOR CONTRACTILITY AND URETHRAL OBSTRUCTION IN NON NEUROLOGICAL WOMEN  
Presented By: Francoise Valentini |
| Poster #NM4 | IS IT SAFE TO REDUCE WATER INTAKE IN THE OVERACTIVE BLADDER POPULATION? A REVIEW OF THE MEDICAL BENEFITS OF INCREASED HYDRATION  
Presented By: Lauren Wood |
| Poster #NM5 | METABOLIC SYNDROME IN FEMALE LOWER URINARY TRACT SYMPTOMS  
Presented By: Hana Yoon |
| Poster #NM6 | HYDRATION STATUS IS NOT ASSOCIATED WITH URINARY INCONTINENCE  
Presented By: Marcella Willis-Gray |
| Poster #NM7 | VERY LOW REAL TIME RATE OF URINARY RETENTION AFTER INTRADETRUSOR BOTOX FOR NON-NEUROGENIC OVERACTIVE BLADDER  
Presented By: Kirin Syed |
| Poster #NM8 | LOW AMPLITUDE RHYTHMIC CONTRACTIONS INFLUENCE SENSATIONS OF URGENCY IN PATIENTS WITH OVERACTIVE BLADDER SYNDROME  
Presented By: Andrew Colhoun |
| Poster #NM9 | EFFICACY AND TOLERABILITY OF MIRABEGRON IN MULTIPLE SCLEROSIS: A PROSPECTIVE ANALYSIS  
Presented By: Temitope Rude |
| Poster #NM10 | URETHRAL CATHETER WITH DISTRIBUTED PRESSURE SENSORS FOR IMPROVED URODYNAMICS  
Presented By: Gerald Timm |
| Poster #NM11 | OVERACTIVE BLADDER PHARMACOTHERAPY-DOES MEDICATION CYCLING HELP?  
Presented By: Alexis Tran |
| Poster #NM12 | PHENOTYPING PATIENTS WITH UNDERACTIVE BLADDER BY ETIOLOGY: IS THERE PRACTICAL MERIT?  
Presented By: Elizabeth Brown |
| Poster #NM13 | APPLYING SIX SIGMA AND LEAN METHODOLOGY FOR IDENTIFYING BARRIERS TO THE CARE OF PATIENTS WITH OVERACTIVE BLADDER  
Presented By: Daniel Liberman |
| Poster #NM14 | TIL DEATH DO US PART: THE RELATIONSHIP BETWEEN URINARY INCONTINENCE AND MARITAL STATUS AMONG US WOMEN AND MEN  
Presented By: Evgeniy Kreydin |
| Poster #NM15 | HIGHER URINE LEVELS OF ENVIRONMENTAL TOXINS ARE ASSOCIATED WITH INCREASED INCONTINENCE AND NOCTURIA IN MEN  
Presented By: Evgeniy Kreydin |
| Poster #NM16 | IN DIABETIC PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY, CONCURRENT PERIPHERAL NEUROPATHY CORRELATES TO NEITHER BLADDER SENSATION NOR TO THE DEGREE OR TYPE OF IMPAIRED CONTRACTILITY  
Presented By: Bradley Potts |
| Poster #NM17 | PERIOPERATIVE OUTCOMES IN ADULT PATIENTS WITH SPINA BIFIDA UNDERGOING LAPAROTOMY FOR UROLOGIC DISEASE  
Presented By: David Moore |
| Poster #NM18 | PATIENT CHARACTERISTICS AND REFERRAL PATTERNS OF AN ADULT CONGENITAL NEUROGENIC BLADDER POPULATION: NEED FOR A BETTER TRANSITION  
Presented By: Laura Martinez |
| Poster #NM19 | LESS IS MORE – A NEW INTRADETRUSOR ONABOTULINUMTOXIN A INJECTION TECHNIQUE FOR NEUROGENIC AND IDIOPATHIC DETRUSOR OVERACTIVITY  
Presented By: Michael Guralnick |
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted.
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<th>Speaker(s)</th>
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<tr>
<td>NM20</td>
<td>FUNCTIONAL MAGNETIC RESONANCE IMAGING (fMRI) DURING URODYNAMIC TESTING (UDS) IDENTIFIES BRAIN STRUCTURES INITIATING VOIDING IN PATIENTS WITH MULTIPLE SCLEROSIS</td>
<td>Rose Khavari</td>
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<tr>
<td>NM21</td>
<td>SEVERITY OF LOWER URINARY TRACT SYMPTOMS PREDICT OVERALL NEUROLOGIC QUALITY OF LIFE AMONG PATIENTS WITH MULTIPLE SCLEROSIS</td>
<td>Aleksandar Blubaum</td>
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<tr>
<td>NM22</td>
<td>NEUROGENIC BLADDER DYSFUNCTION IN ADULTS WITH CEREBRAL PALSY: OUTCOMES FOLLOWING A CONSERVATIVE MANAGEMENT APPROACH</td>
<td>Daniel Liberman</td>
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<tr>
<td>NM23</td>
<td>THE EFFECT OF INTRA-DETRUSOR DYSTROPT® (ABOBOTULINUMTOXIN-A) INJECTION ON PATIENTS WITH SPINAL CORD INJURY AND LONG TERM SUPRAPUBIC CATHETER</td>
<td>Sachin Malde</td>
</tr>
<tr>
<td>NM24</td>
<td>CONTEMPORARY TREATMENT OF DETRUSOR SPHINCTER DYSYNERGIA: A SYSTEMATIC REVIEW</td>
<td>Hanhan Li</td>
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2:20 p.m. - 2:50 p.m. Blaivas Lecture: Lifetime Achievement Award  
Presenter: Eric S. Rovner, MD
“The Future of Female Pelvic Medicine: Humanism, Professionalism and Specialty Specific Survival”
Recipient: Roger R. Dmochowski, MD, MMHC, FACS

2:50 p.m. - 3:20 p.m. Break - Visit with Exhibitors

3:20 p.m. - 3:50 p.m. Panel: Gynecological Considerations in Women Planning Prolapse Repair
Moderator: Karyn S. Eilber, MD
Preoperative Evaluation: Assessing the Uterus and Ovaries
Panelist: Ariana L. Smith, MD
Surgical Management of the Uterus, Ovaries and Tubes
Panelist: Leslie M. Rickey, MD, MPH

3:50 p.m. - 4:15 p.m. Debate: Optimal Repair of Apical Prolapse
Moderator: Mickey Karram, MD
Mesh Matters: Mesh Sacrocolpopexy Remains the Gold Standard
Speaker: Jennifer Anger, MD, MPH
Mesh is Passe in 2016: Apical Support Without Mesh is Superior
Speaker: Saad Juma, MD

4:15 p.m. - 4:30 p.m. Zimskind Lecture:
Presenter: Eric S. Rovner, MD
“Urodynamics 2.0: Time For An Upgrade”
Recipient: Adam P. Klausner, MD

4:30 p.m. - 5:30 p.m. BREAKOUT SESSIONS

1. Congenitalism
Director: Hadley M. Wood, MD
Speakers: Melissa R. Kaufman, MD, PhD
Rose Khavari, MD
Scott C. Schultz, MD

2. Evaluation and Treatment of Female Sexual Dysfunction in an FPMRS Practice
Location: Orpheum Room, 2nd Level
Director: Mickey Karram, MD
Speaker: Nirit Rosenblum, MD

3. Urodynamics - The Basics and Beyond
Location: Conti/Lafitte Room, Mezzanine Level
Director: Michael E. Albo, MD
Speakers: Ryan M. Krilin, MD
Alvaro Lucioni, MD
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

### CONCURRENT POSTER/PODIUM SESSIONS

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<th>Presenters</th>
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<tbody>
<tr>
<td>5:30 p.m.</td>
<td>Male Incontinence/Urodynamics Podium Session</td>
<td>Ahmed M. El-Zawahry, MD, MSC</td>
<td>Christopher Gomez</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>DEVELOPMENT OF A NOVEL ARTIFICIAL URINARY SPHINCTER (AUS): THE PRECISION MEDICAL DEVICES (PMD) FLOW CONTROL DEVICE (FCD) FOR MANAGEMENT OF SPHINCTERIC DEFICIENCY USING BLUETOOTH TECHNOLOGY</td>
<td>Arthur P. Mourtzinos, MD, MBA</td>
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</tr>
<tr>
<td>5:30 p.m.</td>
<td>#9 DEVELOPMENT OF A NOVEL ARTIFICIAL URINARY SPHINCTER (AUS): THE PRECISION MEDICAL DEVICES (PMD) FLOW CONTROL DEVICE (FCD) FOR MANAGEMENT OF SPHINCTERIC DEFICIENCY USING BLUETOOTH TECHNOLOGY</td>
<td></td>
<td>Christopher Gomez</td>
</tr>
<tr>
<td>5:40 p.m.</td>
<td>#10 OBESITY DOES NOT AFFECT SUCCESS OF THE TRANSOBTURATOR MALE SLING FOR POST-PROSTATECTOMY INCONTINENCE</td>
<td>Katherine Brewer</td>
<td>Katherine Brewer</td>
</tr>
<tr>
<td>5:50 p.m.</td>
<td>#11 THE CORRELATION BETWEEN RETROGRADE LEAK POINT PRESSURE AND 24-HOUR PAD WEIGHT FOR MEN WITH POST PROSTATECTOMY INCONTINENCE</td>
<td>Eskinder Solomon</td>
<td>Eskinder Solomon</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>#12 CAN FILLING PHASE URODYNAMIC PARAMETERS PREDICT THE SUCCESS OF THE BULBAR ARTIFICIAL URINARY SPHINCTOR IN TREATING POST-PROSTATECTOMY INCONTINENCE?</td>
<td>Joseph Henderson IV</td>
<td>Joseph Henderson IV</td>
</tr>
<tr>
<td>6:10 p.m.</td>
<td>#13 TRENDS IN UTILIZATION OF SURGICAL THERAPY FOR POST-PROSTATECTOMY STRESS URINARY INCONTINENCE</td>
<td>Yahir Santiago-Lastra</td>
<td>Yahir Santiago-Lastra</td>
</tr>
<tr>
<td>6:20 p.m.</td>
<td>#14 A RANDOMIZED COMPARATIVE STUDY CORRELATING COUGH STRESS TEST WITH URODYNAMICS AND 24 HOUR PAD TEST IN THE EVALUATION OF STRESS URINARY INCONTINENCE</td>
<td>Joseph Henderson IV</td>
<td>Joseph Henderson IV</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>#15 CORRELATION OF REAL-TIME BLADDER SENSATION DURING URODYNAMICS AND NON-INVASIVE ACCELERATED HYDRATION IN PARTICIPANTS WITH URINARY URGENCY</td>
<td>Anna Nagle</td>
<td>Anna Nagle</td>
</tr>
<tr>
<td>6:40 p.m.</td>
<td>#16 ISOMETRIC DETRUSOR CONTRACTILE RESERVE PREDICTS IMMEDIATE RECOVERY OF SPONTANEOUS VOIDING AFTER TRANSURETHRAL RESECTION OF PROSTATE</td>
<td>Amy Dobberfuhl</td>
<td>Amy Dobberfuhl</td>
</tr>
<tr>
<td>6:50 p.m.</td>
<td>#17 BLADDER OUTLET PROCEDURES ARE AN EFFECTIVE TREATMENT OPTION FOR PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY WITHOUT BLADDER OUTLET OBSTRUCTION</td>
<td>Bradley Potts</td>
<td>Bradley Potts</td>
</tr>
</tbody>
</table>

### Female Urology/Incontinence Moderated Poster Session

| Poster #M10 | THE USES AND OUTCOMES OF THE MARTIUS FAT PAD IN FEMALE UROLOGY – A 10 YEAR EXPERIENCE. | Marco Spilotros                               |                                                                                                     |
| Poster #M11 | SURGICAL TRENDS IN THE CORRECTION OF FEMALE STRESS URINARY INCONTINENCE IN ACADMIC CENTERS | Alex Cantrell                                  |                                                                                                     |
| Poster #M12 | MIDURETHRAL SLING: 30 DAY MORBIDITY AND REOPERATION | Andrew Cohen                                   |                                                                                                     |
| Poster #M13 | URINARY INCONTINENCE AFTER SUBURETHRAL MESH REMOVAL REQUARING ANTI-INCONTINENCE PROCEDURES | A. Lenore Ackerman                            |                                                                                                     |
| Poster #M14 | IS THERE A DIFFERENCE IN OUTCOME BETWEEN EARLY VERSUS DELAYED REMOVAL OF SUBURETHRAL MID-URETHRAL SLING? | Himanshu Aggarwal                             |                                                                                                     |
| Poster #M15 | INITIAL PERCEPTIONS OF ELECTIVE CESAREAN DELIVERY AMONG PRIMIPAROUS WOMEN | Lauren Wood                                   |                                                                                                     |
| Poster #M16 | COMPARISON OF TIMES TO URETERAL EFFLUX AFTER ADMINISTRATION OF SODIUM FLUORESCEIN AND PHENAZOPYRIDINE | Seth Cohen                                    |                                                                                                     |
| Poster #M17 | LONG-TERM DURABILITY OF MIDURETHRAL SLINGS: A TIME TO EVENT ANALYSIS IN A TERTIARY REFERRAL SETTING | Kevin Giola                                   |                                                                                                     |
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted.
Speakers and times are subject to change

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<tr>
<td>M18</td>
<td>ASSESSING THE ROLE OF PATIENT-REPORTED OUTCOME QUESTIONNAIRES IN THE EVALUATION OF QUALITY OF LIFE AFTER SLING SURGERY FOR FEMALE STRESS URINARY INCONTINENCE: A REVIEW OF THE LITERATURE</td>
<td>Kyle Rose</td>
</tr>
<tr>
<td>M19</td>
<td>PROSPECTIVE RANDOMIZED FEASIBILITY STUDY ASSESSING THE EFFECT OF CYCLIC SACRAL NEUROMODULATION ON URINARY URGE INCONTINENCE</td>
<td>Steven Siegel</td>
</tr>
<tr>
<td>M20</td>
<td>UROLOGY CHIEF RESIDENT PERCEPTION OF THEIR RESIDENCY TRAINING</td>
<td>Christopher Gomez</td>
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<tr>
<td>M21</td>
<td>IS THERE A MINIMUM IMPORTANT DIFFERENCE IN OUTCOMES OF COMMON VALIDATED QUESTIONNAIRES AFTER SLING SURGERY?</td>
<td>Umar Karaman</td>
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<tr>
<td>M22</td>
<td>CHANGE IN URINARY STORAGE SYMPTOMS FOLLOWING TREATMENT FOR FEMALE STRESS URINARY INCONTINENCE</td>
<td>Zachary Panfili</td>
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<tr>
<td>M23</td>
<td>SYSTEMATIC REVIEW OF ADVERSE EVENTS FROM PERCUTANEOUS TIBIAL NERVE STIMULATION THERAPY COMPARED TO ANTICHOLINERGICS FOR OVERACTIVE BLADDER SYNDROME</td>
<td>Marisa Clifton</td>
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<tr>
<td>M24</td>
<td>MANAGEMENT OF PATIENTS SEEKING REVISION OF ANTI-INCONTINENCE SLING: OUTCOMES OF URETHROLYSIS VS. PARTIAL EXCISION</td>
<td>Alice Drain</td>
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<tr>
<td>M25</td>
<td>THERMAL PAIN THRESHOLD AND TOLERANCE MEASURED BY QUANTITATIVE SENSORY TESTING IN OVERACTIVE BLADDER (OAB): DO WOMEN WITH OAB DEMONSTRATE HYPERALGESIA?</td>
<td>Elizabeth Brown</td>
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5:30 p.m. - 7:00 p.m.

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<tr>
<th>Poster #</th>
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<tbody>
<tr>
<td>NM25</td>
<td>TRENDS IN AMBULATORY MANAGEMENT OF FEMALE URINARY INCONTINENCE IN THE UNITED STATES</td>
<td>James Forde</td>
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<tr>
<td>NM26</td>
<td>RISK FACTORS FOR MICROSCOPIC HEMATURIA IN WOMEN</td>
<td>Lee Richter</td>
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<tr>
<td>NM27</td>
<td>RESIDENT KNOWLEDGE SURGICAL SKILL AND CONFIDENCE IN TRANSOBTURATOR VAGINAL TAPE (TOT) PLACEMENT; THE VALUE OF A CADAVER LAB</td>
<td>Woojin Chong</td>
</tr>
<tr>
<td>NM28</td>
<td>INCIDENCE OF PATHOLOGY IN PATIENTS WITH DISCORDANT ULTRASOUND AND CATHETERIZED POST-VOID RESIDUALS AND ITS EFFECT ON MANAGEMENT</td>
<td>Marisa Clifton</td>
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<tr>
<td>NM29</td>
<td>THE INFLUENCE OF MESH LITIGATION ON REPORTING IN THE MAUDE DATABASE</td>
<td>Lauren Wood</td>
</tr>
<tr>
<td>NM30</td>
<td>INFECTION RATE AFTER SACRAL NEUROMODULATION SURGERY: A REVIEW OF 1033 INTERSTIM PROCEDURES</td>
<td>Marisa Clifton</td>
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<tr>
<td>NM31</td>
<td>CASE DISTRIBUTION AND COMPLICATIONS OF MID-URETHRAL SLING SURGERY BEFORE AND AFTER HEALTH CANADA ADVISORY ON PELVIC FLOOR MESH IN A CANADIAN CENTRE</td>
<td>Kevin Carlson</td>
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<tr>
<td>NM32</td>
<td>CAN PRE-OPERATIVE MRI PREDICT NEW ONSET URODYNAMICALLY PROVEN STRESS URINARY INCONTINENCE (USUI) POST EXCISION OF FEMALE URETHRAL DIVERTICULUM.</td>
<td>Sachin Malde</td>
</tr>
<tr>
<td>NM33</td>
<td>GENDER AND BMI-SPECIFIC ANTICHOLINERGIC PERSISTENCE AND ADHERENCE IN PATIENTS WITH OVERACTIVE BLADDER</td>
<td>Juzar Jamnagerwalla</td>
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<tr>
<td>NM34</td>
<td>ANALYSIS OF SEDIMENT FORMATION ON LONG TERM INDWELLING FREE-FLOATING INTRAVESICAL BALLOONS FOR THE TREATMENT OF SUI FROM TWO MULTICENTER RANDOMIZED CONTROLLED CLINICAL STUDIES.</td>
<td>Jeffrey Snyder</td>
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<td>NM35</td>
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**2016 Scientific Program**

All sessions will be located in *The Roosevelt Ballroom, Mezzanine Level* unless otherwise noted.
Speakers and times are subject to change.

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<th>Poster #NM36</th>
<th>PREDICTORS FOR URINARY RETENTION AFTER INTRAVESICAL ONABOTULINUMTOXINA INJECTION FOR OVERACTIVE BLADDER</th>
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<td>Presented By: Chintan Patel</td>
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<th>Poster #NM37</th>
<th>PREDICTORS OF VAGINAL MESH EXPOSURE FOLLOWING MID-URETHRAL SLING PLACEMENT: A CASE-CONTROL STUDY</th>
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<td>Presented By: Brian Linder</td>
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<tr>
<th>Poster #NM38</th>
<th>DOES TROCAR PUNCTURE OF THE BLADDER DURING MIDURETHRAL SLING IMPACT POSTOPERATIVE URINARY STORAGE AND VOIDING SYMPTOMS?</th>
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<td>Presented By: Jennifer Kent</td>
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<tr>
<th>Poster #NM39</th>
<th>ARE THE WOMEN WITH PERSISTENT STRESS URINARY INCONTINENCE AFTER MIDURETHRAL SLING SURGERY DIFFERENT FROM THOSE WITH RECURRENT SUI?</th>
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<tr>
<td>Presented By: Jessie Liang</td>
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<tr>
<th>Poster #NM40</th>
<th>LESSONS LEARNED FROM THE MANUFACTURER AND USER FACILITY DEVICE EXPERIENCE (MAUDE) DATABASE ON TRANSVAGINAL MESH AND SLING REPORTS</th>
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<td>Presented By: Annie Abraham</td>
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<tr>
<th>Poster #NM41</th>
<th>DOES GOH CLASSIFICATION PREDICT OUTCOME OF VESICO-VAGINAL FISTULA REPAIR IN THE DEVELOPED WORLD?</th>
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<td>Presented By: Alice Beardmore-Gray</td>
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<tr>
<th>Poster #NM42</th>
<th>USE OF ILIOTIBIAL BAND (FASCIA LATA) AS A SALVAGE CONTINENCE REPAIR AFTER MESH REMOVAL – AT LEAST 6 MONTHS FOLLOW UP</th>
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<th>Poster #NM43</th>
<th>CLINICAL OUTCOMES IN WOMEN AFTER REVISION OF MIDURETHRAL SLING: DOES TIME TO INTERVENTION REALLY MATTER?</th>
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<td>Presented By: Ekena Enemchukwu</td>
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<tr>
<th>Poster #NM44</th>
<th>TEACHING MID-URETHRAL SLING SURGERY TO RESIDENTS: IS IT SLOWING US DOWN?</th>
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<td>Presented By: Ali Reza Sharif Afshar</td>
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<th>Poster #NM45</th>
<th>TRANSCRIPTIONAL REGULATION OF CORTICOTROPIN RELEASING FACTOR GENE EXPRESSION</th>
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<td>Presented By: Lizath Aguiniga</td>
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| Poster #NM46 | TRENDS AND RE-INTERVENTIONS IN THE SURGICAL MANAGEMENT OF STRESS URINARY INCONTINENCE AMONG FEMALE MEDICARE BENEFICIARIES |
|--------------|=============================================================================================================|
| Presented By: James Forde |

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<th>Poster #NM47</th>
<th>TRANSVAGINAL MESH IN THE MEDIA FOLLOWING THE 2011 U.S. FOOD AND DRUG ADMINISTRATION PUBLIC HEALTH NOTIFICATION UPDATE</th>
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<td>Presented By: Kevin Koo</td>
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<th>Poster #NM48</th>
<th>FACTORS INFLUENCING THE RATE OF LOST TO FOLLOW-UP AFTER SUB-URETHRAL SYNTHETIC SLING REMOVAL</th>
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<td>Presented By: Jeannine Foster</td>
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<tr>
<th>Poster #NM49</th>
<th>DE NOVO URGENCY IN A MINORITY POPULATION FOLLOWING INCONTINENCE OR PELVIC ORGAN PROLAPSE SURGERY</th>
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<td>Presented By: Cristina Palmer</td>
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<tr>
<th>Poster #NM50</th>
<th>CHARACTERISTICS AND TREATMENTS USED IN WOMEN WITH PERSISTENT GENITAL AROUSAL DISORDER</th>
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<td>Presented By: Brian Odom</td>
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<tr>
<th>Poster #NM51</th>
<th>LONGITUDINAL ASSESSMENT OF TVTO IN THE TREATMENT OF STRESS URINARY INCONTINENCE</th>
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<td>Presented By: Andrew Colhoun</td>
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<th>Poster #NM52</th>
<th>ASSESSMENT OF COMMUNICATION TECHNOLOGY ACCESS DURING GLOBAL HEALTH MISSION</th>
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<td>Presented By: David Rapp</td>
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**FRIDAY, FEBRUARY 26, 2016**

**OVERVIEW**

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<tr>
<th>Time</th>
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<tr>
<td>6:00 a.m. - 6:00 p.m.</td>
<td>Registration/Information Desk Open</td>
<td>Roosevelt Foyer, Mezzanine Level</td>
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<td>7:00 a.m. - 7:45 a.m.</td>
<td>Breakfast in the Exhibit Hall</td>
<td>Crescent City Ballroom, Mezzanine Level</td>
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<tr>
<td>7:00 a.m. - 5:00 p.m.</td>
<td>Speaker Ready Room Hours</td>
<td>Napoleon Room, Mezzanine Level</td>
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All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted.
Speakers and times are subject to change.

7:00 a.m. - 4:00 p.m.  Exhibit Hall Open
Location:  Crescent City Ballroom, Mezzanine Level

6:00 p.m. - 7:30 p.m.  Cocktail Hour and Award Presentations
Location:  Crescent City Ballroom, Mezzanine Level

**GENERAL SESSION**

7:00 a.m. - 8:00 a.m.  *Video Session I
Location:  Crescent City Ballroom, Mezzanine Level
Moderators:  Ajay K. Singla, MD
Elizabeth B. Takacs, MD
*Not CME Accredited

Video #1  VAGINAL REPAIR OF NON-RADIATED POST-HYSTERECTOMY VESICO-VAGINAL FISTULA
Presented By:  Philippe E. Zimmern

Video #2  URETHROVAGINAL FISTULA CLOSURE
Presented By:  Marisa Clifton

Video #3  BLANDY URETHROPLASTY: REPAIR OF MID-URETHRAL STRicture WITH A VAGINAL FLAP
Presented By:  Temitope Rude

Video #4  VAGINAL RECONSTRUCTION WITH FASCIOCUTANEOUS SINGAPORE FLAP
Presented By:  Marisa Clifton

Video #5  SACROSPINOUS FIXATION OF NEOVAGINAL PROLAPSE
Presented By:  Ricardo Palmerola

Video #6  PREVENTION, RECOGNITION, AND MANAGEMENT OF COMPLICATIONS ASSOCIATED WITH SACROSPINOUS COLPOPEXY
Presented By:  Jill Danford

7:00 a.m. - 8:30 a.m.  *Biostatistics Course
Location:  Chamber I, Mayor's Suite Level
Speakers:  April Slee
Jennifer M. Wu, MD, MPH
*Not CME Accredited

8:00 a.m. - 8:30 a.m.  Annual Business Meeting

**CONCURRENT POSTER/PODIUM SESSIONS**

8:30 a.m. - 10:00 a.m.  Pelvic Organ Prolapse/Reconstruction Podium Session
Moderators:  Maude Carmel, MD, FRCSC
Howard B. Goldman, MD

8:30 a.m.  #18  DOES THE DEGREE OF CYSTOCELE PREDICT DE-NOVO STRESS URINARY INCONTINENCE AFTER PROLAPSE REPAIR? FURTHER ANALYSIS OF THE CARE TRIAL
Presented By:  Michael Davenport

8:40 a.m.  #19  HOW USEFUL ARE URODYNAMICS IN THE PREOPERATIVE ASSESSMENT OF WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE?
Presented By:  Dianne Glass

8:50 a.m.  #20  THE IMPACT OF SURGEON EXPERIENCE ON THE COMPLICATIONS OF TRANSVAGINAL PROLAPSE MESH
Presented By:  Erin Kelly

9:00 a.m.  #21  THE TRUTH BEHIND TRANSVAGINAL MESH LITIGATION: DEVICES, TIMELINES, AND PROVIDER CHARACTERISTICS
Presented By:  Lauren Wood

9:10 a.m.  #22  IMPROVEMENT OF POSTOPERATIVE PAIN FOLLOWING VAGINAL RECONSTRUCTIVE SURGERY USING LIPOSOMAL BUPIVACAINE
Presented By:  Mohamed Khehilla

9:20 a.m.  #23  IATROGENIC URETERAL INJURY FROM HYSTERECTOMY IN THE ERA OF MINIMALLY INVASIVE SURGERY: A NATIONAL ANALYSIS OF TRENDS, RISK FACTORS, AND OUTCOMES
Presented By:  Vignesh Parkiam

9:30 a.m.  #24  MID-TERM OUTCOMES FOLLOWING SUB-URETHRAL SYNTHETIC SLING REMOVAL IN WOMEN
Presented By:  Jeannine Foster
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

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<tr>
<td>9:40 a.m.</td>
<td>#25 FEMALE GENITOURINARY FISTULAS</td>
<td>IN THE DEVELOPED WORLD: AN ANALYSIS OF DISEASE CHARACTERISTICS, TREATMENTS AND COMPLICATIONS USING A NATIONAL DATABASE. Presented By: Marissa Velez.</td>
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<tr>
<td>9:50 a.m.</td>
<td>#26 COMPREHENSIVE CHARACTERIZATION</td>
<td>OF INNERVATION ZONES OF THE PELVIC FLOOR AND ANAL SPHINCTER WITH HIGH-DENSITY INTRARECTAL AND INTRAVAGINAL EMG PROBES. Presented By: Yingchun Zhang. *** 2016 Clinical Science Prize Essay Award Winner: Yun Peng, MSc</td>
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8:30 a.m. - 10:00 a.m. Male Incontinence/Urodynamics/Neuromodulation Moderated Poster Session

| Poster #M27  | URODYNAMIC FINDINGS IN MEN WITH AND WITHOUT DIABETES: DO DIFFERENCES EXIST? | Presented By: Ifeanyi Onyeji |
| Poster #M28  | "REAL-WORLD" EFFECTIVENESS OF PERCUTANEOUS Tibial NERVE STIMULATION | Presented By: Yahir Santiago-Lastra |
| Poster #M29  | OUTCOMES OF SACRAL NEUROMODULATION IN PATIENTS WITH PRIOR SURGICAL TREATMENT OF STRESS URINARY INCONTINENCE AND PELVIC ORGAN PROLAPSE | Presented By: Jamie Bartley |
| Poster #M30  | RATE AND RISK FACTORS FOR SACRAL NERVE STIMULATOR LEAD BREAKAGE AT THE TIME OF LEAD REVISION OR EXPLANTATION | Presented By: Javier Pizarro-Berdichevsky |
| Poster #M31  | ASSESSMENT OF BATTERY LIFE OF THE 2ND GENERATION IMPLANTABLE PULSE GENERATOR IN A PRACTICE OF HIGH VOLUME IMPLANTERS | Presented By: Daniel Liberman |
| Poster #M32  | CHRONIC NEUROMODULATION AS A TREATMENT FOR PERSISTENT GENITAL AROUSAL DISORDER | Presented By: Brian Odom |
| Poster #M33  | ARTIFICIAL URINARY SPHINCTER MECHANICAL FAILURES: IS IT BETTER TO REPLACE THE ENTIRE DEVICE OR JUST THE MALFUNCTIONING COMPONENT? | Presented By: Brian Linder |
| Poster #M34  | LONG-TERM SUBJECTIVE AND FUNCTIONAL OUTCOMES OF PRIMARY AND SECONDARY ARTIFICIAL URINARY SPHINCTER IMPLANTATIONS AMONG MEN WITH STRESS URINARY INCONTINENCE | Presented By: Boyd Viers |
| Poster #M35  | OVERACTIVE BLADDER AND URGENCY INCONTINENCE IN MEN UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT | Presented By: Christopher Gomez |
| Poster #M36  | DOUBLE-LAYER VESICOURETHRAL ANASTOMOSIS ASSOCIATED WITH IMPROVED EARLY CONTINENCE AFTER ROBOTIC RADICAL PROSTATECTOMY | Presented By: Juan Guzman |
| Poster #M37  | PREDICTORS OF URINARY RETENTION IN PATIENTS RECEIVING INTRADETRUSOR BOTULINUM TOXIN INJECTIONS | Presented By: Daniel Hoffman |
| Poster #M38  | NON-INVASIVE CHARACTERIZATION OF REAL-TIME BLADDER SENSATION IN NORMAL VOLUNTEERS USING ACCELERATED HYDRATION AND A NOVEL SENSATION METER | Presented By: Adam P. Klausner |
| Poster #M39  | SENSATION DURING FILLING CYSTOMETRY CORRELATES WITH DETRUSOR WALL TENSION IN PATIENTS WITH OVERACTIVE BLADDER | Presented By: Andrew Colhoun |
| Poster #M40  | AUDIOVISUAL STIMULUS DURING URODYNAMICS TO PROVOKE DETRUSOR OVERACTIVITY | Presented By: Jonathan Shaw |
| Poster #M41  | CHARACTERIZING THE URODYNAMIC FINDINGS OF ADULT CEREBRAL PALSY PATIENTS | Presented By: Mya Levy |

8:30 a.m. - 10:00 a.m. Male Incontinence/Urodynamics/Neuromodulation Non-Moderated Poster Session

| Poster #NM53 | DOES UPPER MEDIAL PLACEMENT OF A SACRAL LEAD AFFECT NEUROMODULATION OUTCOMES? A RADILOGIC STUDY | Presented By: Natalie Gaines |

*Male Incontinence/Urodynamics/Neuromodulation Non-Moderated Poster Session
Location: Waldorf Astoria Ballroom, Mezzanine Level
*Not CME Accredited
All sessions will be located in the Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

| Poster #NM54 | SACRAL NERVE STIMULATION IN MALES: HOW DOES IT COMPARE TO FEMALES? | Presented By: Bradley Gill |
| Poster #NM55 | EFFICACY OF PERCUTANEOUS TIBIAL NERVE STIMULATION FOR REFRACTORY IDIOPATHIC OVERACTIVE BLADDER AT A MILITARY INSTITUTION | Presented By: Doug Cho |
| Poster #NM56 | INCIDENCE OF NEUROMODULATION DEVICE EXPLANT FOR MAGNETIC RESONANCE IMAGING IN A SINGLE, HIGH VOLUME INSTITUTION | Presented By: Jamie Bartley |
| Poster #NM57 | DOES THE NUMBER AND TYPE OF PREVIOUS PELVIC PROCEDURES AFFECT OUTCOME OF SACRAL NEUROMODULATION IN THE TREATMENT OF WOMEN WITH IDIOPATHIC DETRUSOR OVERACTIVITY? | Presented By: Eskinder Solomon |
| Poster #NM58 | OVERACTIVE BLADDER PATHWAY AND MEDICAL HISTORY IN A LARGE PROSPECTIVE TRIAL OF SACRAL NEUROMODULATION THERAPY FOR OAB PATIENTS | Presented By: Craig Comiter |
| Poster #NM59 | REMOVAL OF THE INTERSTIM® SACRAL NEUROMODULATION (SNM) PERMANENT TINED LEAD FROM THE S3 FORAMEN: A STANDARDIZED SURGICAL TECHNIQUE | Presented By: Matthew Sterling |
| Poster #NM60 | TIBIAL NEUROMODULATION: NOVEL CHRONIC IMPLANTABLE DEVICE ACHIEVES URINARY CONTINENCE IN INITIAL CASES | Presented By: Karl-Dietrich Sievert |
| Poster #NM61 | INTRA-OPERATIVE NEURO-DIAGNOSTICS DURING STAGED INTERSTIM IMPLANTS: A 10 YEAR EXPERIENCE | Presented By: Charles Butrick |
| Poster #NM62 | LONG-TERM FOLLOW UP RESULTS OF TRANSOBUTURATOR MALE SLINGS FOR POST-PROSTATECTOMY INCONTINENCE | Presented By: Katherine Brewer |
| Poster #NM63 | LONG-TERM OUTCOMES FOLLOWING ARTIFICIAL URINARY SPHINCTER PLACEMENT: AN ANALYSIS OF 1082 CASES AT MAYO CLINIC | Presented By: Brian Linder |
| Poster #NM64 | TEMPORAL PATTERN OF ARTIFICIAL URINARY SPHINCTER (AUS) CUFF EROSIONS INDICATING DIFFERING ETIOLOGIES OF AUS CUFF EROSIONS | Presented By: Deepak Agarwal |
| Poster #NM65 | MALE SLING VERSUS ARTIFICIAL URINARY SPHINCTER AS PRIMARY MANAGEMENT OF POST-PROSTATECTOMY INCONTINENCE: A COST-EFFECTIVENESS ANALYSIS | Presented By: Priyanka Gupta |
| Poster #NM66 | RECOVERY OF URINARY FUNCTION AFTER ROBOTIC-ASSISTED LAPAROSCOPIC PROSTATECTOMY VERSUS RADICAL PERINEAL PROSTATECTOMY FOR EARLY STAGE PROSTATE CANCER | Presented By: Joshua Cohn |
| Poster #NM67 | A CRITICAL APPRAISAL OF THE HISTORY OF MALE STRESS URINARY INCONTINENCE TREATMENT: PAST, CURRENT AND FUTURE | Presented By: Kirin Syed |
| Poster #NM68 | DOES INTRA-OPERATIVE RETROGRADE LEAK POINT PRESSURE PREDICT SUCCESS OF ARGUS MALE PERINEAL SLING | Presented By: Yu Qing Huang |
| Poster #NM69 | EFFECTS OF SMOKING STATUS ON DEVICE SURVIVAL AMONG INDIVIDUALS UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT | Presented By: Christina Godwin |
| Poster #NM70 | PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: RESULTS FROM A NATIONALLY VALIDATED MULTI CENTER PROSPECTIVE COHORT | Presented By: Allen Simms |
| Poster #NM71 | IS PERIURETHRAL INJECTION OF MACROPLASTIQUE® A VIABLE OPTION FOR PATIENTS WITH POST-PROSTATECTOMY URINARY INCONTINENCE? | Presented By: Robert Streblow |
| Poster #NM72 | PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: EFFECT OF LENGTH OF STAY ON OUTCOMES | Presented By: Allen Simms |
| Poster #NM73 | PREDICTORS OF POOR PATIENT SATISFACTION FOLLOWING PRIMARY AUS PLACEMENT AMONG MEN WITH AND WITHOUT A PRIOR HISTORY OF RADIATION | Presented By: Marcelino Rivera |
All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

**Poster #NM74**
UNDERSTANDING DETRUSOR CONTRACTION DURATION: WHAT ARE NORMAL PARAMETERS? AND WHAT ARE DETERMINING FACTORS?
Presented By: Marissa Velez

**Poster #NM75**
URODYNAMIC PARAMETERS FOR UNDERACTIVE BLADDER: ARE THERE DIFFERENCES FOR NEUROGENIC AND NON-NEUROGENIC ETIOLOGIES?
Presented By: Elizabeth Brown

**Poster #NM76**
DOES HISTORY OF HYSTERECTOMY ALTER BLADDER FUNCTION?
Presented By: Rena Malik

**Poster #NM77**
The Use of Lavender Aromatherapy to Decrease Women’s Anxiety and Pain During Multi-Channel Urodynamics
Presented By: Amira Quevedo

**Poster #NM78**
URODYNAMIC CHARACTERISTICS AND THEIR IMPACT ON MANAGEMENT OF NON-NEUROGENIC VOIDING DYSFUNCTION IN YOUNG PATIENTS
Presented By: Baruch Popovtzer

**Poster #NM79**
PRE-SLING URODYNAMIC PARAMETERS ASSOCIATED WITH FUTURE NEED FOR SLING REVISION.
Presented By: Iryna Makovey

10:00 a.m. - 10:30 a.m. Break - Visit with Exhibitors
10:30 a.m. - 10:35 a.m. Announcements
Speaker: Gary E. Lemack, MD

10:35 a.m. - 11:10 a.m. **Panel: Post-Prostatectomy Incontinence**
Moderator: Angelo E. Gousse, MD

Initial Approach to PPI
Panelist: Craig V. Comiter, MD

What Should You Do If Your First Intervention for PPI Fails?
Panelist: Jaspreet S. Sandhu, MD

11:10 a.m. - 11:30 a.m. Distinguished Service Award Lecture: Urethral Surgery for Urethral Stricture - Hamilton Russell to the Present
Presenter: Gary E. Lemack, MD
Speaker: Gerald H. Jordan, MD

11:30 a.m. - 1:00 p.m. Industry Satellite Symposium Luncheon
Location: Chamber II & IV, Mayor’s Suite Level
See page 13 for details.

1:00 p.m. - 1:30 p.m. State of the Art: Neuromodulation: What’s Around the Corner and What’s on the Horizon?
Speaker: Kenneth M. Peters, MD

1:30 p.m. - 2:00 p.m. **Panel: Evaluation and Treatment of Fecal Incontinence**
Moderator: Kevin D. Benson, MD, MS

What Diagnostic Strategies and For Whom?
Panelist: Kevin D. Benson, MD, MS

Surgical Therapy: Is There a Role for Sphincteroplasty in the Era of Neuromodulation?
Panelist: Vincent Lucente, MD, MBA

Fecal Incontinence, Things to Consider
Panelist: Charles W. Butrick, MD

2:00 p.m. - 2:10 p.m. 2013 Neuromodulation Grant Recipient Presentations
Moderator: Raul C. Ordorica, MD

2:02 p.m. - 2:06 p.m. “Foot Neuromodulation for Overactive Bladder”
Presenter: Christopher J. Chemmansky, MD
Recipient: Jeremy N. Reese, MD

2:06 p.m. - 2:10 p.m. “Optimizing Sacral Neuromodulation Programming with EMG and Urinary Cytokines”
Recipient: Michael Ehrlert, MD

2:10 p.m. - 2:15 p.m. Diokno-Lapides Award Presentation
Moderator: Kenneth M. Peters, MD

“Bombesin, a Stress-related Neuropeptide, Centrally Induces Frequent Urination in Rats”
Winner: Takahiro Shimizu, PhD
### 2016 Scientific Program

All sessions will be located in **The Roosevelt Ballroom, Mezzanine Level** unless otherwise noted.

Speakers and times are subject to change.

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<td>2:15 p.m. - 2:45 p.m.</td>
<td>Break - Visit with Exhibitors</td>
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<td>2:45 p.m. - 3:10 p.m.</td>
<td>GURS SOTA Lecture: Female Urethroplasty Update 2016</td>
<td>Kurt A. McCammon, MD</td>
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<tr>
<td>3:00 p.m. - 5:00 p.m.</td>
<td><em>Neurourology and Urodynamics Reviewer Course</em></td>
<td>Chamber III, Mayor's Suite Level</td>
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<td>Location: Chamber III, Mayor's Suite Level</td>
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<tr>
<td></td>
<td>Speakers: David A. Ginsberg, MD</td>
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<td>Stephen R. Kraus, MD</td>
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<td><em>Not CME Accredited</em></td>
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<tr>
<td>3:10 p.m. - 3:30 p.m.</td>
<td>Point Counter Point: Suprapubic Tube in 2016</td>
<td>David A. Ginsberg, MD</td>
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<td>Overutilized and Outdated</td>
<td>Ouida Westney, MD</td>
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<td>Speaker: Ouida Westney, MD</td>
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<tr>
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<td>Underutilized and Underappreciated</td>
<td>L. Keith Lloyd, Jr., MD</td>
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<tr>
<td>3:30 p.m. - 3:50 p.m.</td>
<td>Chemodenervation Update: Drug Delivery - Can We Do Better?</td>
<td>Pradeep Tyagi, PhD</td>
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<td>3:50 p.m. - 4:00 p.m.</td>
<td>2014 Chemodenervation Award Presentation</td>
<td>Gary E. Lemack, MD</td>
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<td></td>
<td>“Chemodenervation with OnabotulinumtoxinA and Its Effect on Bladder Urothelial Function”</td>
<td>Andrea Russo, MD</td>
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### CONCURRENT POSTER/PODIUM SESSION

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<tr>
<td>4:00 p.m. - 5:00 p.m.</td>
<td>Neuromodulation/OAB Moderated Podium Session</td>
<td>Waldorf Astoria Ballroom, Mezzanine Level</td>
<td>Jason M. Kim, MD, Suzette E. Sutherland, MD, MS</td>
<td>#27</td>
<td><strong>Patients with a variety of urological symptoms improve after tined lead implant at the pudendal nerve</strong></td>
<td>Kenneth Peters</td>
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<tr>
<td>4:00 p.m.</td>
<td><strong>Patients with a variety of urological symptoms improve after tined lead implant at the pudendal nerve</strong></td>
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<td></td>
<td>#27</td>
<td>Presented By: Kenneth Peters</td>
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<tr>
<td>4:10 p.m.</td>
<td><strong>Lower risk of lead revision based on “optimal” lead placement during stage 1 Sacral neuromodulation</strong></td>
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<td>#28</td>
<td>Presented By: Javier Pizarro-Berdichevsky</td>
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<tr>
<td>4:20 p.m.</td>
<td><strong>Are baseline characteristics predictive of sacral neuromodulation test stimulation response in a large multicenter trial?</strong></td>
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<td>#29</td>
<td>Presented By: Steven Siegel, MD</td>
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<tr>
<td>4:30 p.m.</td>
<td><strong>Age-related variability in sacral neuromodulation implantation and revisions</strong></td>
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<td>#30</td>
<td>Presented By: Anna Faris</td>
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<tr>
<td>4:40 p.m.</td>
<td><strong>Does sex matter? A matched pairs analysis of neuromodulation outcomes in women and men</strong></td>
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<td>#31</td>
<td>Presented By: Priyanka Gupta</td>
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<tr>
<td>4:50 p.m.</td>
<td><strong>A pilot study of cardiac electrophysiology catheters to map and pace bladder electrical activity</strong></td>
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<td>#32</td>
<td>Presented By: Robert Kelley</td>
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### IC/Pelvic/Geriatrics/BPH Moderated Poster Session

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<td>M42</td>
<td>COMPARISON OF SURGICAL OUTCOMES IN BENIGN PROSTATIC HYPERTROPHY MANAGEMENT USING THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM</td>
<td>Majid Mirzazadeh</td>
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<td>M43</td>
<td>LASER TREATMENT OF BPH: A COMPARISON OF HOLMIUM ENUCLEATION AND DIODE VAPORIZATION OF THE PROSTATE</td>
<td>Whitney Smith</td>
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<td>M44</td>
<td>THE HUMANISTIC IMPACT OF OVERACTIVE BLADDER SYMPTOMS ON AMBULATORY OLDER PATIENTS</td>
<td>Daniel Ng</td>
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<td>M45</td>
<td>NATIONAL ASSESSMENT OF ADVANCING AGE ON PERIOPERATIVE MORBIDITY AND LENGTH OF STAY ASSOCIATED WITH MINIMALLY INVASIVE SACROCOLPOPEXY</td>
<td>Zaid Chaudhry</td>
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<td>M46</td>
<td>OVERACTIVE BLADDER SYMPTOMS’ SEVERITY AND IMPACT ON A QUALITY OF LIFE AMONG SENIOR COMMUNITY HOUSING RESIDENTS</td>
<td>Michael Vainrib</td>
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<td>M47</td>
<td>WHICH BLADDER INSTILLATIONS ARE MORE EFFECTIVE? DMSO VS. BUPIVACAINE/Heparin/Triamcinalone: A RETROSPECTIVE REVIEW</td>
<td>Shilpa Iyer</td>
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<td>M48</td>
<td>RECURRENT URINARY TRACT INFECTIONS DUE TO BACTERIAL PERSISTENCE OR REINFECTION IN WOMEN: DOES THIS FACTOR IMPACT UPPER TRACT IMAGING FINDINGS?</td>
<td>Yuefeng Wu</td>
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<td>M49</td>
<td>BILATERAL SACRAL NEUROMODULATION IN INTERSTITIAL CYSTITIS PATIENTS</td>
<td>Melissa Dawson</td>
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<td>M50</td>
<td>CO-MORBIDITY WITH CHRONIC PAIN CONDITIONS IN WOMEN WITH OAB IS ASSOCIATED WITH GREATER URINARY SYMPTOM BURDEN</td>
<td>W. Stuart Reynolds</td>
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4:00 p.m. - 5:00 p.m. *IC/Pelvic Pain/Geriatrics/BPH Non-Moderated Poster Session

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<tr>
<td>NM80</td>
<td>COMPARISON BETWEEN LOWER URINARY TRACT SYMPTOMS AND URODYNAMIC OUTCOMES IN OCTOGENARIAN WOMEN</td>
<td>Michael Vainrib</td>
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<td>NM81</td>
<td>CYCLOPHOSPHAMIDE-INDUCED OVERACTIVE BLADDER VIA DOWNREGULATION OF RELAXATION FACTORS THROUGH DETRUSOR PDGFRα+ CELLS</td>
<td>Haeyeong Lee</td>
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<td>NM82</td>
<td>PREOPERATIVE ANTIBIOTICS PRIOR TO BLADDER BIOPSY: ARE THEY NECESSARY?</td>
<td>Christopher Sayegh</td>
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<td>NM83</td>
<td>PELVIC FLOOR MUSCLE INJECTIONS FOR HYPERTONICITY IN WOMEN</td>
<td>Natalie Gaines</td>
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<td>NM84</td>
<td>CRITERIA FOR URINARY TRACT INFECTIONS IN PATIENTS WITH INTERSTITIAL CYSTITIS</td>
<td>Rebecca Rinko</td>
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<td>NM85</td>
<td>THE SIGNIFICANCE OF HEMATURIA IN AN IC FLARE</td>
<td>Uzma Chaudhry</td>
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<td>NM86</td>
<td>A TERTIARY CARE CENTER EXPERIENCE WITH UROTHELIAL CARCINOMA PRESENTING AS BLADDER PAIN SYNDROME</td>
<td>Eliza Lamin</td>
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<td>NM87</td>
<td>RESIDUAL PELVIC PAIN/DYSpareunia MANAGEMENT AFTER SYNTHETIC VAGINAL MESH AND/OR SLING REMOVAL</td>
<td>Annie Abraham</td>
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<td>NM88</td>
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<td>NM89</td>
<td>URODYNAMIC FINDINGS AND OPERATIVE MANAGEMENT OF SEVERE COMPLICATIONS OF GREENLIGHT LASER VAPORIZATION OF THE PROSTATE</td>
<td>David Moore</td>
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<td>NM90</td>
<td>APPLICATION OF THE D INDEX: NOMOGRAMS ALLOWING EVALUATION OF BLADDER OUTLET OBSTRUCTION (BOO) IN MEN FROM FREE UROFLOWS (FF)</td>
<td>Francoise Valentini</td>
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<td>NM91</td>
<td>UROLOGICAL COMPLICATIONS IN SPINAL CORD INJURY PATIENTS (SCI): A 40-TO-50 YEAR FOLLOW-UP STUDY</td>
<td>Yunliang Gao</td>
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<td>NM92</td>
<td>DIABETIC BLADDER DYSFUNCTION AND DETRUSOR PDGFRα+ CELLS</td>
<td>Haeyeong Lee</td>
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<tr>
<td>NM93</td>
<td>WITHDRAWN</td>
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5:00 p.m. - 6:00 p.m.  **BREAKOUT SESSIONS**

1. Gynecologic Considerations in FPMRS Practice  
   **Director:** Kimberly Kenton, MD, MS  
   **Speakers:** Charles W. Butrick, MD  
   Ariana L. Smith, MD

2. Pelvic Floor  
   **Location:** Orpheum Room, 2nd Level  
   **Director:** Kelly M. Scott, MD  
   **Speakers:** Pamela Janssen, PT, CLT-LANA  
   Sara C. Reardon, PT, DPT, WCS, BCB-PMD

3. Common Problems in Neuromodulation  
   **Location:** Conti/Lafitte Room, Mezzanine Level  
   **Director:** Kevin D. Benson, MD, MS  
   **Speakers:** Andrea Pezzella, MD  
   Steven W. Siegel, MD

**SATURDAY, FEBRUARY 27, 2016**

**OVERVIEW**

6:00 a.m. - 7:00 a.m.  **Breakfast**  
   **Location:** Roosevelt Promenade, Mezzanine Level

6:00 a.m. - 12:00 p.m.  **Speaker Ready Room Hours**  
   **Location:** Napoleon Room, Mezzanine Level

6:30 a.m. - 12:00 p.m.  **Registration/Information Desk Open**  
   **Location:** Roosevelt Foyer, Mezzanine Level

**GENERAL SESSION**

7:00 a.m. - 8:00 a.m.  **Video Session II**  
   **Moderators:** Benjamin E. Dillon, MD  
   Richard Lee, MD, MBA  
   *Not CME Accredited*

   **Video #7**  
   **TRANSVAGINAL SLING EXCISION: TIPS AND TRICKS**  
   Presented By: Marisa Clifton

   **Video #8**  
   **PLACEMENT OF AUTOLOGOUS SUBURETHRAL SLING HARVESTED FROM VAGINAL EPITHELIUM**  
   Presented By: Salim Cherian

   **Video #9**  
   **PRIMARY BLADDER NECK OBSTRUCTION**  
   Presented By: Laura Gepphart

   **Video #10**  
   **MINIMALLY INVASIVE TECHNIQUE FOR FASCIA LATA HARVEST**  
   Presented By: Temitope Rude

   **Video #11**  
   **TRANSLABIAL ULTRASOUND EVALUATION OF PELVIC FLOOR STRUCTURES AND MESH IN THE UROLOGY OFFICE AND INTRAOPERATIVE SETTING**  
   Presented By: Jim Shen

   **Video #12**  
   **HAND-ASSISTED LAPAROSCOPIC RIGHT COLON MOBILIZATION FOR CONTINENT CUTANEOUS ILEAL CECOSTOMY PLASTY**  
   Presented By: Daniel Liberman

**CONCURRENT POSTER/PODIUM SESSION**

8:00 a.m. - 9:30 a.m.  **Female Urology/Incontinence Podium Session**  
   **Moderators:**  
   E. Ann Gormley, MD  
   Philippe E. Zimmerm, MD

8:00 a.m.  **#33**  
   **SLING PROCEDURES FOR THE TREATMENT OF STRESS URINARY INCONTINENCE (SUI): COMPARISON OF NATIONAL PRACTICE PATTERNS BETWEEN UROLOGISTS AND GYNECOLOGISTS**  
   Presented By: Maxwell B. James
### 8:00 a.m. - 9:30 a.m.

**LUTS/Voiding Dysfunction/Neurogenic Bladder Podium Session**

**Location:** Orpheum Room, 2nd Level  
**Moderators:** Raymond R. Rackley, MD  
Christopher E. Wolter, MD

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</table>
| 8:00 a.m. | **#42** LACK OF EFFICACY OF A SOMATIC-TO-AUTONOMIC INTRADURAL NERVE ANASTOMOSIS (XIAO PROCEDURE) FOR BLADDER CONTROL IN CHILDREN WITH MYELOMENINGOCELE AND LIPOMYELOMENINGOCELE: RESULTS OF A PROSPECTIVE RANDOMIZED DOUBLE BLINDED STUDY  
Presented By: Gerald Tuite |
| 8:10 a.m. | **#43** POSITIVE OUTCOMES AFTER FIRST TREATMENT WITH ONABOTULINUMTOXINA PERSIST LONG-TERM WITH REPEAT TREATMENTS IN PATIENTS WITH NEUROGENIC DETRUSOR OVERACTIVITY  
Presented By: Roger Dmochowski |
| 8:20 a.m. | **#44** SACRAL NEUROMODULATION THERAPY IN PATIENTS WITH NEUROLOGIC LOWER URINARY TRACT DYSFUNCTION – SHOULD IT REMAIN AN OFF LABEL INDICATION? ANALYSIS OF 80 CONSECUTIVE CASES  
Presented By: Henry Okafor |
| 8:30 a.m. | **#45** UROLOGIC RECONSTRUCTION, URINARY TRACT INFECTIONS, AND RENAL DYSFUNCTION IN A CONTEMPORARY COHORT OF TRAUMATIC SPINAL CORD INJURED PATIENTS  
Presented By: Blayne Welk |
| 8:40 a.m. | **#46** CHARACTERIZING LUT DYSFUNCTION IN MEN WITH MS: RESULTS FROM A PROSPECTIVELY MAINTAINED DATABASE FROM 2000-2015  
Presented By: Catherine Harris |
| 8:50 a.m. | **#47** EFFICACY AND SAFETY OF MIRABEGRON ADD-ON TREATMENT TO SOLIFENACIN IN INCONTINENT OVERACTIVE BLADDER (OAB) PATIENTS WITH AN INADEQUATE RESPONSE TO INITIAL 4-WEEK SOLIFENACIN TREATMENT  
Presented By: Scott MacDiarmid |
| 9:00 a.m. | **#48** TEMPORAL SUMMATION AS AN OBJECTIVE MARKER FOR OVERACTIVE BLADDER IN WOMEN  
Presented By: Elizabeth Brown |
| 9:10 a.m. | **#49** FALSE NEGATIVES OF STANDARD URINE CULTURES MAY DELAY PATIENT TREATMENT AUTHORS  
Presented By: Tanaka Dune |
| 9:20 a.m. | **#50** SPECIFIC URINARY TRACT INFECTION SYMPTOMS IN WOMEN RELATE TO URINARY ORGANISMS  
Presented By: Tanaka Dune |

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### 8:00 a.m. - 9:30 a.m.

**Pelvic Organ Prolapse/Reconstruction Moderated Poster Session**

**Location:** Waldorf Astoria Ballroom, Mezzanine Level  
**Moderators:** Elise J. De, MD  
Courttenay K. Moore, MD

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**Speakers and times are subject to change.**
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<td>PREDICTIVE VALUE OF POST-URETHROPLASTY VOIDING CYSTOURETHROGRAM</td>
<td>Esther Han</td>
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<td>M52</td>
<td>FEMALE URETHRAL DIVERTICULA: HOW DO MRI FINDINGS CORRELATE WITH PRE-OPERATIVE SIGNS AND SYMPTOMS OR POST-OPERATIVE OUTCOMES?</td>
<td>Nima Baradaran</td>
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<td>M53</td>
<td>THE MEDIUM TERM OUTCOMES OF STOMA FORMATION FOR PATIENTS UNDERGOING CONDUIT DIVERSION FOR FUNCTIONAL AETIOLOGY: 5 YEAR FOLLOW-UP</td>
<td>Osman Kose</td>
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<td>M54</td>
<td>ROBOTIC REPAIR OF VESICOVAGINAL FISTULAS USING FIBRIN SEALANT</td>
<td>Graham Machen</td>
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<td>M55</td>
<td>DURABILITY OF REVISION SURGERY FOR STENOSIS OF CATHETERIZABLE CHANNELS IN ADULTS</td>
<td>Daniel Liberman</td>
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<td>M56</td>
<td>FACTORS ASSOCIATED WITH PESSARY DISCONTINUATION: A RETROSPECTIVE REVIEW</td>
<td>Yoko Takashima</td>
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<td>M57</td>
<td>COMPARISON OF ONE-YEAR OUTCOMES FOR SACROSPINOSUS HYSTEROPEXY AUGMENTED WITH POLYPROPYLENE MESH AND HUMAN DERMAL GRAFT: AN AMBIDIRECTIONAL COHORT STUDY</td>
<td>Shilpa Iyer</td>
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<td>M58</td>
<td>TRANSVAGINAL MESH INCREASES THE RISK OF BLEEDING AND ORGAN SURGICAL SITE INFECTION IN VAGINAL PELVIC RECONSTRUCTION SURGERY: RESULTS FROM A MULTI-INSTITUTIONAL PROSPECTIVELY MAINTAINED DATASET</td>
<td>Majid Mirzazadeh</td>
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<td>Bernhard Liedl</td>
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<td>A RETROSPECTIVE COMPARISON OF DYSPAREUNIA AND MESH EXPOSURE OUTCOMES FOR PATIENTS WHO HAVE UNDERGONE GYNEMESH (PROLIFT) AND NOVASILK (EXAIR) FOR TREATMENT OF PELVIC ORGAN PROLAPSE (POP)</td>
<td>Angel Gonzalez Rios</td>
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8:00 a.m. - 9:30 a.m. *Pelvic Organ Prolapse/Reconstruction Non-Moderated Poster Session

<p>| Poster NM94 | THE EFFECT OF VAGINAL ESTROGEN ON THE EXTRACELLULAR MATRIX IN WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE | Cantey Hattink               |
| Poster NM95 | EARLY EXPERIENCE WITH ROBOTIC-ASSISTED LAPAROSCOPIC SACROCOLPOPEXY (RALS) WITH ALLOGRAFT FASCIA LATA IN PATIENTS WITH PRIOR MESH COMPLICATIONS | Tamara Lhungay               |
| Poster NM96 | ACCURACY OF A PORTABLE BLADDER SCANNER IN MEASURING PVR IN WOMEN WITH PELVIC ORGAN PROLAPSE | Steven Weissbart             |
| Poster NM97 | HIGH MIDLINE LEVATOR MYORRHAPHY FOR VAGINAL VAULT PROLAPSE: LONG-TERM RESULTS | Yuefeng Wu                   |
| Poster NM98 | TRENDS IN MESH USAGE AND RESIDENT INVOLVEMENT FOR VAGINAL SURGERY FROM THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM | Majid Mirzazadeh             |</p>
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All sessions will be located in The Roosevelt Ballroom, Mezzanine Level unless otherwise noted. Speakers and times are subject to change.

Poster #NM121
A TERTIARY EXPERIENCE OF ILEAL-URETER SUBSTITUTION: CONTEMPORARY INDICATIONS AND OUTCOMES
Presented By: Sachin Malde

Poster #NM122
PERIOPERATIVE OUTCOMES OF VESICOVAGINAL FISTULA REPAIR: VAGINAL VERSUS ABDOMINAL SURGICAL APPROACH
Presented By: Deborah Hess

9:30 a.m. - 9:50 a.m.
Registries In Urology - How Will You Be Affected?
Speaker: J. Quentin Clemens, MD

9:50 a.m. - 10:20 a.m.
Impact of ICD-10 On Your Practice
Speaker: Mark N. Painter

10:20 a.m. - 10:40 a.m.
Update on Maintenance of Certification (MOC) for FPMRS
Speaker: J. Christian Winters, MD, FACS

10:40 a.m. - 11:00 a.m.
Debate: Mini-Sling Has Come of Age
Moderator: Stephen R. Kraus, MD

For
Speaker: Suzette E. Sutherland, MD, MS

Against
Speaker: Eric S. Rovner, MD

11:00 a.m. - 11:30 a.m.
OAB Panel: Extraordinarily Challenging Cases
Moderator: Gary E. Lemack, MD
Discussants: Una J. Lee, MD
Alana M. Murphy, MD
Anne K. Pelletier Cameron, MD
Sandip P. Vasavada, MD

11:30 a.m. - 12:00 p.m.
Panel: What To Do When Problems Persist After Mesh Removal?
Moderator: E. Ann Gormley, MD

Persistent Incontinence
Panelist: Christopher S. Elliott, MD, PhD

Persistent Obstruction
Panelist: Benjamin M. Brucker, MD

Persistent Pain
Panelist: Melissa R. Kaufman, MD, PhD

12:00 p.m.
Meeting Adjourns

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Society for Urodynamics, Female Pelvic Medicine
and Urogenital Reconstruction

Friday, February 26, 2016
8:00 a.m. – 8:30 a.m.
Location: The Roosevelt Ballroom, Mezzanine Level

1. Call to Order – President, Eric S. Rovner, MD
2. Approval of 2015 Minutes and Thank You to Program Chairs – Eric S. Rovner, MD
3. Treasurer's Report – Kathleen C. Kobashi, MD
4. Awards Committee Report – Victor W. Nitti, MD
5. Membership Committee Report – Alan J. Wein, MD, FACS, PhD (Hon)
6. Nominating Committee Report – Gary E. Lemack, MD
7. Other – Eric S. Rovner, MD
2016 SUFU Fellows Forum
Wednesday, February 24, 2016
1:30 p.m. – 5:45 p.m.
*Not CME Accredited

Please Note: Abstract Sessions One & Two are held concurrently.
Location: Chamber III, Mayor’s Suite Level

1:30 p.m. – 1:35 p.m. Welcome and Introduction

1:35 p.m. – 1:45 p.m. Choosing a Practice Model/How to Get Started
Craig V. Comiter, MD

1:45 p.m. – 1:55 p.m. Private Practice
Suzette E. Sutherland, MD, MS

1:55 p.m. – 2:05 p.m. Academic Practice
Jennifer Anger, MD, MPH

2:05 p.m. – 2:15 p.m. Multispecialty Clinic
Alvaro Lucioni, MD

2:15 p.m. – 2:30 p.m. Setting Up Research Program
Toby C. Chai, MD

2:30 p.m. – 2:45 p.m. Q&A

2:45 p.m. – 3:25 p.m. Key Considerations for Transitioning to Practice
Dale Moss

3:25 p.m. – 3:35 p.m. Break

3:35 p.m. – 5:45 p.m. Fellow Abstract Presentations

**Group One**
*Location: Chamber I, Mayor’s Suite Level*
*Moderator: Craig V. Comiter, MD*

**Group Two**
*Location: Chamber III, Mayor’s Suite Level*
*Moderator: Christopher S. Elliott, MD PhD*
Breakout Group One

3:35 p.m. – 3:44 p.m.  LONG TERM OUTCOMES OF RECTOCELE REPAIR IN A TERTIARY REFERRAL SETTING
Presented by: Sarah Adelstein, MD

3:44 p.m. – 3:53 p.m.  AN OFFICE GUIDE TO OBTAINING URODYNAMICS (UDS) IN WOMEN WITH MULTIPLE
SCLEROSIS (MS)
Presented by: Himanshu Aggarwal, MD, MS

3:53 p.m. – 4:02 p.m.  OUTCOMES FOLLOWING TRANSOBTURATOR SLING PLACEMENT FOR MEN WITH
SEVERE URINARY INCONTINENCE
Presented by: Oscar Suaez, MD

4:02 p.m. – 4:11 p.m.  MAXIMAL DIVERSION: OUTCOMES FOR CONCOMITANT UROSTOMY AND
ENTEROSTOMY PROCEDURES FOR BENIGN CONDITIONS
Presented by: Paholo Barboglio Romo, MD, MPH

4:11 p.m. – 4:20 p.m.  TEMPORAL SUMMATION AS AN OBJECTIVE MARKER FOR OVERACTIVE BLADDER IN
WOMEN
Presented by: Elizabeth T. Brown, MD, MPH

4:20 p.m. – 4:29 p.m.  FEMALE URETHRAL DIVERTICULA: CORRELATION OF MRI FINDINGS WITH PRE-
OPERATIVE SIGNS AND SYMPTOMS OR POST-OPERATIVE OUTCOMES?
Presented by: Leah Chiles, MD

4:29 p.m. – 4:38 p.m.  SYSTEMATIC REVIEW OF ADVERSE EVENTS FROM PERCUTANEOUS TIBIAL NERVE
STIMULATION THERAPY COMPARED TO ANTICHOLINERGICS FOR OVERACTIVE
BLADDER SYNDROME
Presented by: Marisa Clifton, MD

4:38 p.m. – 4:47 p.m.  COMPARISON OF TIMES TO URETERAL EFFLUX AFTER ADMINISTRATION OF SODIUM
FLUORESCIN AND PHENAZOPYRIDINE
Presented by: Seth Cohen, MD

4:47 p.m. – 4:56 p.m.  THE PREVALENCE OF UNDERACTIVE BLADDER AMONG U.S. FEMALE MEDICARE
BENEFICIARIES
Presented by: Joshua Cohn, MD

4:56 p.m. – 5:05 p.m.  SACRAL NEUROMODULATION FOR THE TREATMENT OF RETENTION IN PARTIAL
SACRECTOMY PATIENTS
Presented by: Katie Cunningham, MD

5:05 p.m. – 5:14 p.m.  OUTCOMES OF BILATERAL LEAD PLACEMENT FOR STAGE 1 SACRAL
NEUROMODULATION TRIAL
Presented by: Elodi Dielubanza, MD

5:14 p.m. – 5:23 p.m.  ISOMETRIC DETRUSOR CONTRACTILE RESERVE PREDICTS IMMEDIATE RECOVERY OF
SPONTANEOUS VOIDING AFTER TRANSURETHRAL RESECTION OF PROSTATE
Presented by: Amy Dobberfuhl, MD
5:23 p.m. – 5:32 p.m.  OUTCOMES OF HIGH UTEROSACRAL HYSTEROPEXY IN THE MANAGEMENT OF PELVIC ORGAN PROLAPSED  
Presented by: Solafa Elshatanoufy, MD

5:32 p.m. – 5:41 p.m.  RADIOGRAPHIC MISDIAGNOSES AFTER PERIURETHRAL BULKING AGENTS  
Presented by: Natalie Gaines, MD

5:41 p.m. – 5:45 p.m.  Wrap Up/Q & A
Breakout Group Two

3:35 p.m. – 3:44 p.m. HOW USEFUL ARE URODYNAMICS IN THE PREOPERATIVE ASSESSMENT OF WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE?
Presented by: Diane Glass, MD, PhD

3:44 p.m. – 3:53 p.m. LONG-TERM DURABILITY OF MIDURETHRAL SLINGS: A TIME TO EVENT ANALYSIS IN A TERTIARY REFERRAL SETTING
Presented by: Kevin Gioia, MD

3:53 p.m. – 4:02 p.m. STRESS URINARY INCONTINENCE AFTER ROBOTIC ASSISTED PROLAPSE REPAIR
Presented by: Priyanka Gupta, MD

4:02 p.m. – 4:11 p.m. IMPROVEMENT IN STRESS URINARY INCONTINENCE WITH PESSARY USE VS. SLING PROCEDURE
Presented by: Meghan Griffin, DO

4:11 p.m. – 4:20 p.m. CHARACTERIZING LUT DYSFUNCTION IN MEN WITH MS: RESULTS FROM A PROSPECTIVELY MAINTAINED DATABASE FROM 2000–2015
Presented by: Catherine Harris, MD

4:20 p.m. – 4:29 p.m. HIGHER URINE LEVELS OF ENVIRONMENTAL TOXINS ARE ASSOCIATED WITH INCREASED INCONTINENCE AND NOCTURIA IN MEN
Presented by: Evgeniy Kreydin, MD

4:29 p.m. – 4:38 p.m. ALLOGRAFT DERMIS FOR FEMALE PELVIC FLOOR REPAIR
Presented by: Kelly McAlvany, DO

4:38 p.m. – 4:47 p.m. SACRAL NEUROMODULATION THERAPY IN PATIENTS WITH NEUROLOGIC LOWER URINARY TRACT DYSFUNCTION – SHOULD IT REMAIN AN OFF LABEL INDICATION?
ANALYSIS OF 80 CONSECUTIVE CASES
Presented by: Henry Okafor, MD

4:47 p.m. – 4:56 p.m. LOWER RISK OF LEAD REVISION BASED ON “OPTIMAL” LEAD PLACEMENT DURING STAGE 1 SACRAL NEUROMODULATION
Presented by: Javier Pizarro-Berdichevsky, MD

4:56 p.m. – 5:05 p.m. INCONSISTENCY IN THE DEFINITION OF URINARY TRACT INFECTION IN THE SPINAL CORD INJURY POPULATION: A SYSTEMATIC REVIEW
Presented by: Yahir Santiago-Lastra, MD

5:05 p.m. – 5:14 p.m. VERY LOW REAL TIME RATE OF URINARY RETENTION AFTER INTRADETRUSOR BOTOX FOR NON-NEUROGENIC OVERACTIVE BLADDER
Presented by: Kirin Syed, DO

5:14 p.m. – 5:23 p.m. HARVEST OF TENSOR FASCIA LATA GRAFT FOR ABDOMINAL SACRAL COLPOPEXY
Presented by: Maria Voznesensky, MD

5:23 p.m. – 5:32 p.m. BRAIN ACTIVATIONS DURING BLADDER FILLING IN WOMEN WITH REFRACTORY OVERACTIVE BLADDER
Presented by: Steven Weissbart, MD

5:32 p.m. – 5:45 p.m. Wrap Up/Q & A
Biomechanics of the Pelvic Floor
Margot S. Damaser, PhD
Professor, Cleveland Clinic Lerner College of Medicine
Staff, Dept of Biomedical Engineering, Cleveland Clinic
Senior Research Career Scientist, Louis Stokes Cleveland VA Medical Center

Pelvic floor disorders may occur due to weakness or injury to the muscles and connective tissues in the pelvic cavity, resulting in stress urinary incontinence (SUI), fecal incontinence, and/or pelvic organ prolapse (POP). Nearly 24 percent of U.S. women are affected with one or more pelvic floor disorders, and this cluster of health problems can cause physical discomfort as well as limit activity, often diminishing quality of life. The frequency of pelvic floor disorders (PFD) increases with age, affecting more than 40 percent of women from 60 to 79 years of age, and about 50 percent of women 80 and older. Risk factors for PFD include childbirth, and conditions that involve chronic straining such as heavy lifting and chronic constipation. Evidence continues to emerge in support of a substantial genetic component to the risk factors for PFD.

When conservative therapy fails, surgical therapy is the next step of treatment and a number of surgical options exist, including vaginal and abdominal endoscopic (and open) approaches. Surgical interventions are often offered to patients based on surgeon preference and skill rather than being optimized for individual patient pathology and biomechanical status. Surgical success rates are often initially reported as "high", but under deeper scrutiny, when strict anatomic and patient symptom parameters are considered, success rates are often found to be lower than initially thought. Furthermore, early and late surgical complications and unintended side-effects can alter the risk/benefit profile of surgical interventions. After previously issuing 2 warnings on use of transvaginal mesh for treatment of POP, in January 2016, the US Food and Drug Administration (FDA) issued a final order to reclassify surgical mesh for transvaginal POP repair from class II to class III based on the determination that general controls and special controls together are not sufficient to provide reasonable assurance of safety and effectiveness for this device, and these devices present a potential unreasonable risk of illness or injury.

The FDA also states that the safety and effectiveness of mini-slings for female SUI have not been adequately demonstrated. Mesh sling surgeries for SUI have been reported to be successful in approximately 70 to 80 percent of women at one year, based on women's reports and physical exams. Similar effectiveness outcomes are reported following non-mesh SUI surgeries. However, the use of mesh slings in transvaginal SUI repair introduces a risk not present in traditional non-mesh surgery for SUI repair: mesh erosion, also known as extrusion, the most commonly reported mesh-specific complication from SUI surgeries with mesh. Therefore, treatments for pelvic floor disorders clearly need to be improved and more research is needed.

Biomechanics can lead the way in this research by enabling engineering analysis to refine designs well prior to actual construction and testing in animals or human subjects. Currently, there is no such systematic methodology for preoperatively studying the utility of surgical procedures contemplated for the repair of POP or SUI. Since most research in pelvic floor dysfunction to date has been epidemiological with outcomes focused on anatomic and quality of life, commercial products addressing pelvic floor dysfunction have been released for use in the absence of thorough preclinical engineering evaluation and testing. The resulting complications attributed to the design, commercialization and surgical implantation of prostheses point to the need for an interdisciplinary approach to understanding the biomechanics of the female pelvic floor. Prostheses designed for permanent implantation into the pelvic floor need to have material characteristics, textile, and structural characteristics optimally matched to those of the tissues that they are designed to reinforce or support since they participate in the structural configuration of the pelvic floor tissues, and often become load bearing. This requires that materials and structural engineers collaborate with anatomists, surgeons, and musculoskeletal specialists to ensure that prosthetic designs are appropriate for insertion into the planned areas, and will not cause untoward disruptions of otherwise normal functions. In addition, biomechanical modeling approaches can be used to direct the design of novel therapies such as tissue engineered treatments for pelvic floor disorders.

A important new reference in the field is a first of its kind textbook, Biomechanics of the Female Pelvic Floor, edited by Lennox Hoyte and Margot Damaser, to be published by Elsevier Press in Spring of 2016. This text is designed to get the different stakeholders on the same page regarding anatomy, physiology, musculoskeletal and tissue characteristics of the pelvic floor tissues, and to establish the basic principles of biomechanical analysis as it applies to pelvic floor disorders. We expect this text will foster a common language for continued conversations and collaboration to improve design, conduct, and reporting of research study outcomes.
Mesh Behavior in Vivo: The Critical Role of Mechanics
Pamela Moalli, MD, PhD

Synthetic mesh use in the surgical repair of pelvic organ prolapse (POP) is widespread, with approximately 1/3 of all surgical repairs utilizing mesh. Mesh use has increased, in part, to overcome the high failure rates associated with native tissue repairs that in a recent large multicenter randomized trial approached 40%. Ideally, synthetic meshes provide structural support to the vagina in order to eliminate the symptoms of prolapse, restore vaginal function and relieve the psychosocial issues resulting from this disorder. While synthetic mesh augmented prolapse repairs boast superior anatomical outcomes relative to repairs utilizing native tissues in smaller studies, the benefit of mesh has been questioned due to complication rates as high as 20%, particularly pain and exposure of mesh through the vaginal epithelium. Complications are higher in transvaginal as opposed to transabdominal applications. Although they appear to be related to the presence of a permanent foreign body, the mechanism by which they occur remains unclear. Current evidence suggests that the etiology of mesh complications is multi-factorial including the textile properties of the mesh, the technique of the surgeon, the host immune response, the quality of the host tissue, the environment in which it is implanted, the route of implantation and the mechanical behavior of the mesh.

Meshes differ by weight, pore size and porosity which impact mechanical behavior especially the stiffness of the material—a parameter that defines how much a material deforms when a load is applied to it. We performed a study in which we compared the impact of 3 meshes of varying weight, porosity and stiffness on the vagina. The meshes were implanted by sacrocolpopexy after a hysterectomy in a nonhuman primate model (rhesus macaque). Animals undergoing an identical Sham surgery were used as controls. Examination of the mesh tissue complexes at 3 months showed that in the heavier weight, lower porosity, higher stiffness mesh Gynemesh PS (Ethicon), had a profoundly negative impact on the vagina, ultimately resulting in a thinning of the vagina associated with a loss of functional and mechanical integrity. When we compared this response to that following implantation of newer generation prolapse meshes (lower weight, increased pore size and porosity, lower stiffness), the newer materials had less of a negative effect. While all meshes induced a classic foreign body response characterized by a predominance of M1 polarized proinflammatory macrophages and a proinflammatory cytokine environment, the host response was associated with a higher amount of proremodeling M2 macrophages and anti-inflammatory cytokines in the presence of the lower weight, higher porosity, lower stiffness meshes. In the end, however, no particular mesh characteristic was predictive of the host response.

Most critically, our studies revealed that a mesh’s pre-implantation characteristics were generally not reflective of what it assumed once mechanical tension was applied. Ex vivo mechanical tests in conjunction with computational analyses clearly demonstrated that prolapse meshes can have markedly unstable geometries with a loss of porosity with small applications of tension and that stresses imposed on the vagina by the mesh have significant regional variability. These effects are largely driven by the pore geometry of the mesh, the degree of tension, and how the mesh is anchored. Indeed, our experimental and computational model predictions of the impact of these mechanical effects are confirmed in mesh explants removed from women with mesh complications which demonstrate buckles, folds, and pore collapse. With our long term goal of improving mesh products and decreasing the risk of complications in women, we continue to evolve in our understanding of the behavior of mesh in vivo and the role of mechanics in driving the host response.
Age and Gender Effects of Regenerative Medicine Therapies on the Urinary Sphincter Complex

J. Koudy Williams DVM, Professor: Wake Forest University Institute for Regenerative Medicine, Professor, Wake Forest Translational Institute, Wake Forest Baptist Medical Center, Winston-Salem, NC

Regenerative Medicine offers the promise of an unlimited amount of tissue and organ repair and replacement. Great progress has been made in preclinical studies and many applications are now in the clinical stage. Regenerative Medicine is beginning to explore the potential effects of aging and gender on the efficacy of treatment.

Aging reduces the ability of tissue to regenerate and contributes to increased risk of chronic muscle, bone, cardiovascular, urogenital, neuronal and digestive diseases. This is especially true with muscle-associated diseases where aging increases DNA methylation of muscle cells, reduces muscle satellite cell populations and increases the rate of muscle cell apoptosis and fibrosis. This represents a challenge to muscle cell therapies that may work well in younger individuals, but not as well in older individuals who could greatly benefit from such therapies. This has stimulated research to increase the efficacy of cell therapy by altering the cells (transfection with growth factors or chemokines), direct injection of chemokines or cell products, altering the hormonal status, reducing an unfavorable local environment (reducing oxidative stress), or increasing the survivability within the tissue.

Dissecting out age from gender as risk factors is often not easy. For instance the risk of urinary incontinence is associated with increasing age, but is also associated with dramatic changes in the hormonal milieu. While the loss of sphincter muscle is not directly related to changes in hormones such as estrogen, estrogen status can dramatically alter the efficacy of muscle cell therapy.

This presentation will first review select studies identifying the effects of age, gender and hormone status on the ability of cells to stimulate regeneration of tissues. The majority of this presentation will introduce a female nonhuman primate (NHP) model of induce intrinsic urinary sphincter deficiency (ISD) and then present results of several studies describing the effects of skeletal muscle precursor cell (skMPC) treatment in acute vs. chronic fibrotic ISD; older and younger NHPs and in NHPs with dysmenorrhea. The presentation will close with the results of recent studies identifying the use of chemokines on sphincter regeneration in this animal model.
Tuesday, February 23, 2016  
2:40 p.m. – 3:30 p.m.

How Peripheral Denervation May Explain Detrusor Overactivity With Impaired Contractility  
Marcus Drake, MA, DM, FRCS (Urol): Senior Lecturer in Urology, University of Bristol, UK

For several years, researchers have used isolated bladder preparations to study intrinsic bladder motility, discerning a startling range of spontaneous contractility in species ranging in size from mouse [1] to pig [2, 3]. In general, this takes the form of localised micromotions, which are low amplitude and spread a short distance, and have barely detectable effect on intravesical pressure. However, the micromotility changes under conditions of stimulation, and in animal models. Thus, substantial, high frequency and widely propagating micromotility can become very obvious [4]. Yet, the effect of even very obvious movement on the bladder pressure can still be relatively small. This raises a key question; how does micromotility relate to intravesical pressure?

We generated a theoretical model, which indicates that the key factors that determine this relationship are;
1. Micromotion initiation
2. Extent of propagation or synchronisation
3. The overall tone of the bladder

Clearly, if the micromotions are not initiated in the first place, they cannot affect bladder pressure. The extent to which they propagate is crucial, since a larger extent of the bladder contracting should have a greater chance of affecting the pressure. Synchronisation should have the same effect, since two areas contracting simultaneously should increase the effective contracting area. A crucial factor is the “tone”, since if the bladder overall is floppy, the force of any micromotility will be soaked up, meaning it will have little effect on pressure. In experiments on isolated rat bladder, we were able to manipulate all three parameters of initiation, propagation and tone, respectively using interstitial cell inhibition, gap junction blockers or beta-adrenergic agonists. These each had congruent effects on intravesical pressure.

When using more complex models which retain afferent nerve function, it is possible to record sensory nerve activity responding to micromotility, which is thought to be a consequence of the local distorting effects of micromotions. This increased sensory traffic is one of the reasons why micromotility is clinically important, as it may be a strong factor in the generation of urgency. The link between micromotions and urgency [4] (and in some cases pain [5]) has actually been demonstrated in women. This is a good explanation why people can have strong urgency sensation, which can occur in the absence of obvious bladder pressure change.

Thus, the intrinsic behaviour of the bladder is to express micromotility. In vivo, however, there is a strong efferent inhibition of the bladder [6], mediated at a ganglionic and more peripheral level, which is what prevents micromotility being evident during normal urine storage. Efferent inhibition ensures passivity and low tone, enabling compliant, low sensation urine storage. In people with detrusor overactivity, patchy denervation is seen in all cases; thus, loss of the efferent inhibition allows the emergence of micromotility, and thence urgency. Indeed, this patchy denervation is the basis of the myogenic hypothesis of detrusor overactivity [7].

Some patients can have “detrusor hyperactivity with impaired contractility” [8], a term to describe people who suffer both overactivity during urine storage and detrusor underactivity during voiding. Such people are probably experiencing consequences of patchy peripheral denervation; the loss of efferent inhibitory influence during storage, and the partial loss of the efferent excitatory influence needed for effective bladder contraction when voiding.

There is still a lot to learn about the bladder control in its two phases of storage and voiding, and the drivers of clinical progression. Particularly pertinent is the extent to which the urothelium alters so many of the facets described above with its complex functional properties, notably sensory nerve function, interstitial cell activity, tone and micromotility [9]. While it is the balance of efferent innervation that determines the behaviour of the bladder, it is very exciting to reflect how the urothelium could modulate it.

In summary, the generation of bladder pressure is an integrative property reflecting the initiation and propagation of micromotility, and the overall bladder tone. These are regulated by the balance of the dual efferent supply, which is inhibitory-dominant during storage, and excitatory-dominant during voiding. In the clinical setting, partial peripheral denervation reduces the coverage of one or both of the efferent influences, allowing emergence of urgency or detrusor overactivity, with or without underactive voiding, depending on the precise functions affected.
References


The major published findings of the MAPP biomarker group are those correlating response of patients with UCPPS to stimuli that act on either toll like receptor 2 (TLR-2) or 4 (TLR-4) and their symptoms/phenotype. Toll like receptors are receptors on immune cells that respond to both substances found in bacteria, but also to chemicals involved in tissue damage and stress. In women with Interstitial Cystitis/Painful Bladder Syndrome (IC/PBS), inflammatory cytokines were assayed as well in TLR-2 and TLR-4 stimulated peripheral blood mononuclear cells. Compared to healthy controls, patients with IC/PBS had higher levels of plasma IL-6, greater IL-1 responsiveness to TLR-2 stimulation, and flatter diurnal cortisol slopes. Inflammation after TLR-4 stimulation was significantly correlated with genitourinary pain severity, frequency and pain with intercourse. A follow-up study found that TLR-4 inflammatory response correlated with having pain outside of the pelvis, and also with the presence of comorbid pain conditions such as Irritable Bowel Syndrome, Fibromyalgia and/or Chronic Fatigue Syndrome, Temporomandibular joint syndrome and Vulvodynia. TLR-4 response was also marginally associated with lower pain thresholds. These findings together indicate a likely role for TLR-4 and also poor endogenous control of inflammation given the alteration in cortisol diurnal patterns.

TLR-4 is involved in glial cell inflammation that mediates central pain amplification. Thus it is possibly important in the pain phenotype that we see in IC/PBS. Given that it is a receptor for LPS from gram negative bacteria, it may also be a link between bacteria and pain in these patients. Studies of the microbiome to date in patients with UCPPS have shown that in men with pelvic pain, there were no significant differences in the bacteria isolated from VB2 and VB3 using next generation detection techniques. There was an overrepresentation of B. cenocepacia in the VB1 specimens controlled to age matched controls without pelvic pain. Studies in animal models have focused more on the differences found individual bacteria and the contribution to producing symptoms. Uropathogenic bacteria (UPEC) elicit pain in infections through the interaction its lipopolysaccharide (LPS) and the TLR-4 receptor. This interaction is independent of inflammatory response, and also the pain response including the development of allodynia could be modulated by the O-antigen part of the LPS molecule. In models of painful UTI, bacteria that produce asymptomatic bacteriuria, when instilled in the bladder of an animal infected with UPEC, can not only clear the bacteria, but also reduced pain, not seen in the antibiotic treated animals.

Our thinking of the role of infection in patients with pelvic pain is evolving back to an appreciation of a role for infection, albeit in a very likely different way than we thought in the past. When we found no differences between bacterial types, numbers or localization in men with pelvic pain compared to asymptomatic controls, one conclusion was that perhaps bacteria are not involved in the condition. While newer technology may demonstrate differences in types of bacteria in patients with pelvic pain, we are also now appreciating the importance of not what class of bacteria but the morphology of the individual bacteria. The importance of the TLR-4 molecule in both bacterial response and role in neuropathic pain points to a possible explanation for the somewhat confusing role of infection in pelvic pain the past, and an attractive road map for pushing forward.

Wednesday, February 24, 2016  
10:45 a.m. – 11:45 a.m.

An Academic Pharmacologist in Commercial Drug Development. Experience from β₃-adrenoceptor Agonist Development  
Martin C. Michel, Dept. Pharmacology  
Johannes Gutenberg University, Mainz, Germany

The presentation will summarize the experience of an academic pharmacology involved in a commercial drug development project, based on the example of the development of β₃-adrenoceptor (B3AR) agonists for overactive bladder syndrome (OAB) treatment. The B3AR was recognized as a distinct molecular entity only after its cloning in 1989. Development of B3AR agonists as treatment of the OAB started after this drug class had failed in development for the treatment of obesity and type 2 diabetes failed, because species differences in ligand recognition profiles, tissue distribution and functional role had been underappreciated. Development of B3AR agonists as OAB treatments met with several challenges, many of them were addressed in close collaboration between the originating company and various academic investigators. Company-independent academic work in the OAB field has also affect commercial drug development. First, concepts of the pathophysiology underlying urinary bladder dysfunction were only poorly defined when OAB work started around the year 2000 and have considerably developed in the past 15 years. Specifically, the smooth muscle-centric view of bladder function changed into a multi-player concept including urothelium, interstitial cells, afferent nerves and blood vessels. This questioned the original rationale for B3AR agonists, which had been based on muscle strip experiments. Second, the overall role of B3AR in humans was largely unknown and no validated tools existed for their detection at the protein level, complicating prediction of possible side effects in patients. Third, the selectivity of pharmacological tools for functional studies was limited, often leading to false conclusions. Fourth, B3AR polymorphisms had been described but their impact on target function was controversial. Fifth, generating meaningful selectivity in agonists is much more difficult than in antagonists as cells expressing another receptor subtype but high receptor reserve may show responses even if the agonist occupies only a minor fraction of these receptors. The concept of biased agonism also evolved only while clinical development was already ongoing. Meanwhile, mirabegron as the first B3AR agonist has been launched successfully in major markets and is becoming guideline recommended treatment. The translational pharmacology program, co-designed by the originating company and academic investigators was a relevant success factor in this regard. It is concluded that academia-industry collaboration can be a mutually rewarding experience. Successful collaborations require a mutual understanding and respecting of the distinct roles and interests of both partners. Any collaboration must be guided by transparency and scientific integrity.
An academic pharmacologist in commercial drug development
Experience from β₃-adrenoceptor agonist development

Martin C. Michel, MD, MAE, FBPhS
Dept. of Pharmacology
Johannes Gutenberg University Mainz, Germany

Conflict of interest
The author currently is an employee of Boehringer Ingelheim. This presentation is unrelated to his employment.

Research support, consultancy and/or lecturer honoraria in OAB field received in past 10 years from:
- Allergan
- Astellas (major parts of this presentation are based on an Astellas project)
- AltheRX, now Velicept Therapeutics (also stock owner)
- Bayer
- Pfizer
- Schwarz Pharma

Aim of presentation
• Describe translational pharmacology program accompanying repurposing development of β₃-adrenoceptor agonists
• Highlight role of academic pharmacology for commercial drug development

Based on personal involvement in the programs for
- Mirabegron
- Ritabegron
- Solabegron

Aim of presentation
• Historical background
- 1967: Lands et al. classify β-adrenoceptors into subtypes β₁ and β₂
- 1970s: Some apparently β-adrenoceptor-mediated responses do not fit this scheme
  - Lipolysis in rat adipocytes
  - Relaxation of rat colon
  - Relaxation of human bladder
- Early 1980s: Beecham starts drug discovery and development program aiming at obesity and diabetes
- 1989: Human β₃-adrenoceptor cloned

Lessons
• Humans are no rodents
  - Early target validation in humans mandatory

Medical need in OAB treatment
Mainstay of OAB treatment are muscarinic antagonists
- Symptomatic, not curative
- Moderate efficacy
- Frequent adverse events (dry mouth, constipation etc.)
- Few patients stay on treatment long-term

Hypothesis
• β₃-Adrenoceptor agonists may be more effective and/or better tolerated

Obesity/type 2 diabetes: the dead-end

• Based on role of β₃-adrenoceptor in rat lipolysis, discovery and development programs started in several companies
• All of them failed because
  - Initial ligands did not work well on human receptor
  - Human adults have little brown adipose tissue
  - Lipolysis in human white adipose tissue largely independent of β₃-receptor
• Unfortunately, most of the negative clinical proof-of-concept studies remain unpublished

Challenges
• Bladder pathophysiology – a moving target
• Poor research tools (antibodies, radioligands, agonists, antagonists)
• Species differences
• Receptor polymorphisms
• Desensitization
• Based agonism

Acknowledgments
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- Mauritia Berendsen
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- Wilfred
- Bart Witte

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- Marie-Jeanne Mathy
- Martina B. Michel-Reher
- Christine Teitsma

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- Yasuhito Iizasa (Tokyo)
- Jean de la Rosette (Amsterdam)
- Wouter Lamers (Amsterdam)
- Frank Baas (Amsterdam)
- Martina Schmidt (Groningen)

Funding
- DFG (German Research Council)
- European Union FP7 program
**Bladder dysfunction – a moving target**

- Early concepts focused on smooth muscle cells/isolated detrusor strips
  - Relaxation responses in human bladder largely \( \beta_3 \)-mediated, but additional subtypes involved in other species
  - \( \beta_3 \)-Adrenoceptor antibodies
  - Many \( \beta_3 \)-adrenoceptor antibodies lack useful target specificity
  - Validated antibodies are emerging – but target selectivity is species- and application-dependent

**Beta-agonists in OAB models**

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<tr>
<th>Model</th>
<th>Gender</th>
<th>Ageing</th>
<th>Acetic acid</th>
<th>PGE2</th>
<th>Stroke</th>
<th>Diabetes</th>
<th>SHR</th>
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**Lessons**

- Humans are no rodents
  - Early target validation in humans mandatory
  - Let data drive concepts and not concepts misguide data interpretation

**Challenges**

- Bladder pathophysiology – a moving target
- Poor research tools (antibodies, radioligands, agonists, antagonists)
- Species differences
- Receptor polymorphisms
- Desensitization
- Biased agonism
Agonists and antagonists

- Most agonists and antagonists in public domain have low affinity for $\beta_3$-adrenoceptors
  - Agonists:
    - SR 99,232 is not selective for $\beta_3$-adrenoceptors
    - L 745,337 is good selectivity but less potent in rodents
  - Antagonists:
    - SR 59,230 is not selective for $\beta_3$-adrenoceptors
    - L 748,337 has good selectivity but is less potent in rodents

Species differences

- Different expression pattern and functional role of target
  - e.g. adipocytes and brown adipose tissue
- Different physiological roles of target tissue
  - e.g. brown adipose tissue largely lacking in adult humans

$\beta_3$-Adrenoceptors

- Ligand affinity
- Agonist effects
- Susceptibility to desensitization
- And be associated with some disease states
- Studies on $\beta_3$-adrenoceptors are inconclusive and lacking for bladder function

Lessons

- Humans are no rodents
  - Early target validation in humans mandatory
  - Let data drive concepts and not concepts misguide data interpretation
- Preclinical mechanistic data cannot be better than the tools being used

Challenges

- Bladder pathophysiology – a moving target
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- Receptor polymorphisms
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$\beta_3$-Adrenoceptor gene polymorphisms

Polymorphisms in $\beta_3$- and/or $\beta_3$-adrenoceptor genes have been reported to affect
- Ligand affinity
- Agonist effects
- Susceptibility to desensitization
- And be associated with some disease states
- Studies on $\beta_3$-adrenoceptors are inconclusive and lacking for bladder function

<table>
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<tr>
<th>Genotype</th>
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<td>Wild type</td>
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<td>312±14</td>
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<td>265M</td>
<td>295±24</td>
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<td>64R/265M</td>
<td>308±17</td>
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<td>306F</td>
<td>261±53</td>
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<td>64R/306F</td>
<td>279±37</td>
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$K_d$ values are based on $[^{125}]I$-iodocyanopindolol binding
N = 6-8 for saturation and 3-4 for competition
All in transfected HEK cells
No SNP effects on cAMP response

Genotyping results
- L306F not detected in any further patient
- Allele frequencies (64W 92.8% and 64R 7.2%) in good agreement with other Caucasian populations
- Sequencing of 8 homozygous 64R subjects showed homozygous 1218R in each case, confirming existence of a haplotype
- No apparent phenotypic difference between homo- and heterozygous 64R carriers, pooled for all further analysis
- No apparent genotype/phenotype association for >30 parameters of bladder and prostate function
- No evidence of functional relevance of tested polymorphisms

Search for new polymorphisms
- Database of 1015 fully phenotyped (including pressure-flow studies) Caucasian men with lower urinary tract symptoms suggestive of benign prostatic hyperplasia
- 91 patients selected representing the lower and upper end of bladder compliance (≤3 vs. >91 ml/cm H₂O)
- Each detected polymorphism verified by resequencing

Challenges
- Bladder pathophysiology – a moving target
- Poor research tools (antibodies, radioligands, agonists, antagonists)
- Species differences
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- Desensitization
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Sequencing results
- W64R detected in 8 patients
- T265M not detected
- Novel SNPs in coding region
  - H238R [950G>T]
  - L306F [916G>T]
- Non-coding SNPs
  - [-169del, -170c>a]
  - [1219g>t]
  - [2135a>g]
  - [2502g>c]
- The latter three always found in 64R carriers: possible haplotype

Mechanisms of desensitization
β₂-Adrenoceptor desensitization can involve:
- uncoupling from G-protein
- receptor down-regulation
- down-regulation of G₁₂ or up-regulation of G₃
- reduced function of adenylyl cyclase
- increased phosphodiesterase activity
- Receptor gene polymorphisms may affect sensibility for desensitization

Cell type-dependent desensitization

β₂-Adrenoceptor desensitization in HEK cells
- Time- and concentration-dependent
- Not accompanied by altered receptor density
- Not accompanied by G₁₂-up-regulation
- Similar with and without PTX treatment
- Involving reduced adenylyl cyclase activity (forskolin response)
- Mimicked by pre-treatment with forskolin
- Not dependent on genotype at W64R locus

Background
- Agonist-induced desensitization can be treatment limiting, e.g. with β₂-agonists for tocolysis
- β₂-Adrenoceptors often considered to be resistant to agonist-induced desensitization
- Possibly due to lack of phosphorylation sites
- In some cell types, agonist-induced desensitization is present, e.g. in HEK cells
- Does bladder relaxation by a β₂-adrenoceptor agonist undergo desensitization?
Rat bladder desensitization

6 h pre-treatment with isoprenaline and fenoterol desensitizes the subsequent isoprenaline response, whereas CL 316,243 and mirabegron cause less desensitization.


Relaxation responses to CL 316,243 are desensitized by isoprenaline or CL 316,243 pre-treatment, whereas those to mirabegron are not affected by pre-treatment.


Conclusions -1-

- Academia and industry have distinct but overlapping needs
  - Academia: frequent interest in application of research (drug discovery and development)
  - Lack of interdisciplinary resources and funds required for drug development
  - Need for diversification of funding
- Pharmaceutical industry: need for external expertise

Adrenoceptor classification

1980s dichotomous

β3-adrenoceptor agonists

Why β3-adrenoceptor agonists?

- Kidneys continuously produce urine, but voiding is a discontinuous act (<8x per day in healthy humans)
- Need to store close to 0 ml (after a void) to ≥500 ml without major increases in pressure
- Detrusor overactivity likely to be the pathophysiological correlate of OAB
- Reduces functional bladder capacity
- Necessitates frequent voiding
- β3-Adrenoceptors are a key mediator of detrusor smooth muscle relaxation and bladder compliance

Conclusions -2-

- Academia-industry collaborations can be rewarding
  - Successful collaboration requires mutual understanding and respecting of distinct roles and interests
    - Commercial interests including IP
    - Publishing
  - Reaching legal frameworks for collaboration may be cumbersome
  - Any collaboration must be guided by transparency and scientific integrity

Bladder pathophysiology – a moving target
- Poor research tools (antibodies, radioligands, agonists, antagonists)
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- Desensitization
- Biased agonism

Challenges

Biased agonism

- β3-Adrenoceptors stimulate adenylyl cyclase via Gs but can also involve Gi to inhibit adenylyl cyclase, activate ERK, PI-3-kinase and src and stimulate NO release
  - May also modulate various ion channels
- Some ligands preferentially stimulate one pathway (biased agonists)
  - Uncertainty on signaling pathway mediating detrusor relaxation

Biased agonist SR 59,230 causes rat and human bladder strip relaxation despite lacking stimulation of adenylyl cyclase


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Adrenoceptor classification

>1995 trichotomous


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Bladder β3-adrenoceptor expression

mRNA level
- Human: 63 ± 96% of all β-adrenoceptor mRNA
- Rat: similar expression of all three subtypes

Detection at protein level difficult because
- Lack of high-affinity radioactive
- Lack of well validated antibodies

References:

β3-Adrenoceptors in human urothelium
- In contrast to detrusor, human urothelium mainly expresses β2-receptor mRNA
- Limited β2-receptors cause NO release, ERK activation and increase expression of COX-2 and iNOS
- Receptor subtype not clear
- Apparently cAMP independent

References:
Harmon et al. (2005) Cell Commun Signal 3: 10
Ochodnicky et al. (2012) BJU Int 110: E293-E300

Isoprenaline-induced relaxation of human detrusor strips: gender

With limited subject number no significant gender effect
Minor reduction in Emax seen in female rats

References:
Frazier et al. (2006) Naunyn-Schmiedeberg's Arch Pharmacol 373: 300-309
Schneider et al. (2011) Frontiers Pharmacol 2: 11

Role of BKCa channels

The BKCa inhibitors charybdotoxin and iberiotoxin caused minor inhibition of isoprenaline responses against pre-contraction but not against passive tension.

References:

β-Adrenoceptors in human urothelium
- Pre-junctional modulation of transmitter release in the bladder involves β2, but not β3-adrenoceptors
- Bladder hypertrophy, fibrosis and denervation observed in several bladder pathologies; no evidence for modulation by β3-adrenoceptors

References:
Barendrecht et al. (2007) Auton Autacoid Pharmacol 27: 47-54

Isoprenaline-induced relaxation of human detrusor strips: age

With limited subject number no significant age effect
Similar absence of age effect in rat studies

References:
Frazier et al. (2006) Naunyn-Schmiedeberg's Arch Pharmacol 373: 300-309
Schneider et al. (2011) Frontiers Pharmacol 2: 11

SHR vs. WKY rats

Limited desensitization (reduced Emax) for some but not other β-adrenoceptor agonists in spontaneously hypertensive rats

References:
Frazier et al. (2006) Naunyn-Schmiedeberg's Arch Pharmacol 373: 300-309

Role of adenylyl cyclase

The adenylyl cyclase inhibitor SQ 22,536 and the protein kinase A inhibitors H7, H89 and Rp-cAMPS caused little inhibition of isoprenaline responses

References:
Frazier et al. (2006) Naunyn-Schmiedeberg's Arch Pharmacol 373: 300-309

CNS/efferent nerves
- β2-Adrenoceptors active in CNS, but no evidence for effect on bladder function
- Pre-junctional modulation of transmitter release in the bladder involves β2, but not β3-adrenoceptors
- Bladder hypertrophy, fibrosis and denervation observed in several bladder pathologies; no evidence for modulation by β3-adrenoceptors
- Rats:
  - Diabetic polyneuropathy
  - Bladder outlet obstruction

References:

Bladder outlet obstruction rats

Limited desensitization for some but not other β-adrenoceptor agonists in obstructed rats
Not accompanied by altered β2 or β3 mRNA expression

References:
Relaxation depends on contraction stimulus

Physiological bladder contraction in humans only muscarinic, but in pathology several other contractile stimuli

<table>
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<tr>
<th>Relaxation stimulus</th>
<th>Pre-treatment</th>
<th>n.d.</th>
<th>fenoterol</th>
<th>CL 316,243</th>
<th>mirabegron</th>
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<td>Isoprenaline</td>
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<td>KCl</td>
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<td>n.d.</td>
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</table>

\[ n.d.: \text{not determined} \]

Summary of desensitization

Relaxation depends on contraction stimulus

Bladder dysfunction – a moving target

Early concepts focused on smooth muscle cells/isolated detrusor strips

Additional cell types may play important roles

– Urothelium

– Interstitial cells of Cajal

– Afferent nerves

Conclusions

Tools to study \( \beta_3 \)-adrenoceptor expression are just emerging

\( \beta_3 \)-Adrenoceptors play a key role in bladder storage function, possibly involving multiple levels of regulation

\( \beta_3 \)-Adrenoceptor function appears largely maintained in bladder pathology

\( \beta_3 \)-Adrenoceptor gene polymorphisms unlikely to limit therapeutic effects

\( \beta_3 \)-Adrenoceptor desensitization is tissue-dependent but at least for some agonists may be absent in the bladder

Clinical tolerability profile of \( \beta_3 \)-adrenoceptor agonists close to placebo, apparently reflecting limited expression outside the bladder

Clinical effects of a \( \beta_3 \)-agonist in OAB

Mirabegron has been launched in several major markets

Translational pharmacology programs have played a major role in establishing the concept of \( \beta_3 \)-adrenoceptors as OAB therapeutics
Wednesday, February 24, 2016
3:10 p.m. – 4:00 p.m.

The Microcirculation and Inflammation
D. Neil Granger, LSU Health Sciences Center-Shreveport

The microcirculation is highly responsive to, and a vital participant in, the inflammatory response. All segments of the microvasculature (arterioles, capillaries, and venules) exhibit characteristic structural and phenotypic changes during the course of an inflammatory response that appear to be directed toward enhancing the delivery of inflammatory cells to the injured/infected tissue, isolating the region from healthy tissue and the systemic circulation, and setting the stage for tissue repair and regeneration.

The best characterized responses of the microcirculation to inflammation include impaired vasomotor function, reduced capillary perfusion, adhesion of leukocytes and platelets, activation of the coagulation cascade, and enhanced thrombosis, increased vascular permeability, and an increase in the rate of proliferation of blood and lymphatic vessels. A variety of cells that normally circulate in blood (leukocytes, platelets) or that reside within the vessel wall (endothelial cells, pericytes) or in the perivascular space (mast cells, macrophages) are activated in response to inflammation. The activation products and chemical mediators released from these cells act through different well-characterized signaling pathways to induce the phenotypic changes in microvessel function that accompany inflammation. It remains unclear whether any single cell type plays a dominant role in coordinating the microvascular response to inflammation. However, if such an orchestrator exists, it is likely the endothelial cell. This presentation will provide an overview of how the microcirculation responds and contributes to an inflammatory response and addresses potential targets for development of novel therapeutics for inflammation.
Thursday, February 25, 2016
8:10 a.m. – 8:50 a.m.

Advances in the Treatment of Underactive Bladder
Pills, Pumps and Injections
Michael B. Chancellor, MD

Michael B. Chancellor, MD, received his medical degree from the Medical College of Wisconsin in Milwaukee. He completed his internship in Surgery and his residency in Urology at the University of Michigan Medical School in Ann Arbor. He completed his fellowship in Neurourology and Female Urology at Columbia University College of Physicians and Surgeons in New York City. He was previously Professor at the University of Pittsburgh, Pennsylvania. Dr. Chancellor is a Professor in the Department of Urology at the Oakland University William Beaumont School of Medicine in Royal Oak, Michigan. He is the Director of the Aikens Center for Neurourology Research.

While most physicians are familiar with overactive bladder (OAB), the converse condition of underactive bladder (UAB) is hardly awarded by the public or health care providers. Yet UAB is as prevalent as OAB and a problem that has no effective drug treatment. Bethanechol chloride, the current standard for treating patients with UAB is regarded by most experts as lacking in significant efficacy and with significant side effect. I will present recent development in three novel approaches toward treating UAB. The three approaches span the three branches of the FDA in Device, Drug and Biologic.

Device Treatment: An exciting development occurred in 2015 when the US FDA approved the inFlow Intraurethral Valve-Pump device for use in women 18 years of age or older who have incomplete bladder emptying due to impaired detrusor contractility of neurologic origin, and who are capable of operating it in accordance with instructions or who have trained caregivers. The inFlow device must be replaced every 29 days (or less). I will describe what the inFlow device is and how to use it.

Drug Development: Dignify Therapeutics is a drug development company focused on restoring voluntary control of excretory function to neurologically-impaired people. The Company is conducting development activities for DTI-100. DTI-100 may enable patients to empty their bladder and/or bowel on demand. DTI-100 demonstrates potent in vitro contraction of human bladder and bowel and potent in vivo contraction of bladder in anesthetized control rats and rats with acute spinal injury.

Biologic Trial with Cellular Therapy: Our team at Beaumont Heath System has successfully completed the first regenerative medicine cellular therapy in an FDA-approved, compassionate-use IND trial of autologous muscle-derived stem cells (AMDC) on a patient diagnosed with UAB. Currently we are conducting a 20 subject single institution open label phase 2a clinical trial at Beaumont Health System. Cells will be harvested via needle biopsy from the quadriceps femoris muscle. Injection into the underactive bladder will be via flexible cystoscopic injection of AMDC (Cook Myosite, Pittsburgh, PA) under local lidocaine anesthesia.

It is only over the past 2 years that the term underactive bladder has become widely accepted and momentum is building for UAB to become a top priority in urology research over the next decade. The series of International Congress for underactive bladder (CURE-UAB), sponsored by the Aikens Center for Neurourology Research at Beaumont Health System, the Underactive Bladder Foundation, the National Institute of Aging and NIDDK is a catalyst to advance global scientific advances in UAB. A special issue of International Urology and Nephrology (Chancellor and Diokno 2014) summarizes the first CURE-UAB congress and slides from the 2nd International Congress CURE-UAB (December 2015) is available online (www.underactivebladder.org). Additional resources is available in the book “The Underactive Bladder” http://www.springer.com/us/book/9783319236865

Thursday, February 25, 2016
8:50 a.m. – 9:30 a.m.

Novel Treatment Approaches to Urological Pelvic Pain
Robert Moldwin, MD

Only two FDA approved treatments are available for the interstitial cystitis/ bladder pain syndrome (IC/BPS) patient; and no FDA approved therapy exists for the male chronic pelvic pain syndrome (CPPS) patient. Fortunately, treatment strategies continue to evolve for both of these patient groups; however, the heterogeneity of these conditions continues to hamper progress in terms of research design and clinical results. The most novel approaches to care align with many of the pathophysiologic features identified, either on a local or systemic level. Other interventions target the varied co-morbid conditions identified in the majority of patients.

Some new agents that hold therapeutic promise include those that target membrane-based inflammatory events such as the SHIP 1 (scr homology 2-containing inositol-5'-phosphatase 1) activator AQX-1125. The ATP receptor (P2X3) antagonist, AF-219, is an oral agent that has potential to provide pain relief by directly affecting peripheral pain fibers. Oral agents that may have impact on concomitant voiding dysfunction (identified in at least 80% of IC/BPS patients) include alpha-blockers and skeletal muscle relaxants. Newer antiseizure agents have potential for pain control while providing less fatigue, and have little effect on constipation or voiding function.

Intravesical agents have always had appeal to clinicians because of their direct effect on presumed bladder-based pain. Many practitioners have strayed away from often irritating agents such as DMSO, preferring to administer anesthetic agents based upon their potential to provide immediate pain relief. These medications often have effects that persist far beyond what their pharmacokinetic properties would suggest. Alkalization of lidocaine-based preparations appears to result in higher tissue levels and might produce a more profound therapeutic effect.

Apart from insurance coverage concerns, the technique for intravesical instillations can be taught to almost any patient and can even be used for symptom flares. For those patients suffering from urethral pain, self-application of agents via urethral injectors is considered.

Liposomes, spherical sacs of phospholipids frequently surrounding a central core of water or drug, may provide an effective vehicle to deliver specific agents to the bladder surface. Studies also suggest that the liposomes, themselves may provide symptom relief. One of the downsides of providing typical intravesical therapy is the bolus type approach that is used, an approach that leaves the bladder surface untreated for long intervals. That difficulty is circumvented with the lidocaine-releasing intravesical system (LiRIS), a device that is currently undergoing clinical trials.

Surgical intervention has been primarily been based upon neuromodulation and endoscopic procedures. Clinical experience suggests that sacral neuromodulation may be quite effective for the voiding dysfunction that is so frequently identified in this patient population; but it also appears to ease pain for many patients. More defined pudendal nerve stimulation also holds promise for these patients, many of whom have failed numerous local interventions.

Endoscopic fulguration of the bladder surface can result in a profound, albeit temporary, improvement of symptoms for those patients with Hunner lesions. In an attempt to decrease the amount of fulguration applied (and possibly address preexisting bladder scarring), endoscopic injection of triamcinolone has been performed with results that match the more aggressive approach. Case reports suggest the use of endoscopic scar incision with hydrodistention to improve the “end stage” contracted bladder.

Nerve blocks (i.e., pudendal, ilioinguinal) and trigger point injections to the pelvic floor may serve a role to treat the pain associated with the frequently identified hypertonic pelvic floor and trigger points. Botulinum toxin A may also be employed for trigger point injections in select patients.

Although not a novel approach, one cannot underscore enough the need for a multimodal approach for these patient populations. It is the relatively rare patient who has a profound impact from a sole intervention.
ICD-10 Coding for Urology
Mark N. Painter
Managing Partner
PRS Consulting, LLC
markp@prsdata.com

Identify “Hot Spots” and Monitor
• Payer Bulletins and Communication Channels
  • EOBs
    – Denials will happen do not panic, double check denial reasons and react appropriately
    – Track Dx denials that might reflect incorrect crosswalk/changes on payment policies double check before simply rebilling with changed Dx
  – Check Dx pointers as well as Dx code

ICD-10 First Month Stats

<table>
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<th>Metric</th>
<th>Denied 10% of total claims processed</th>
<th>Denied 10% of total claims processed</th>
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<td>0.17% of total claims submitted</td>
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<td>Total Claims Rejected due to invalid ICD-10 codes</td>
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<td>Total Claims Rejected due to incomplete or invalid information</td>
<td>2.0% of total claims submitted</td>
<td>2.0% of total claims submitted</td>
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Expect Ramp Up
• Medicare beginning to refine Dx specificity in some LCDs. (ie. UA LCD removal some unspecified codes)
• LCD Changes have to follow standard release/review protocol.
• CAC still has influence and may be contacted for assistance in revising incorrect policies or those that over step.

Now What
• Time to let go of ICD-9
  – Does not require you change short cut language
  – High Volume Dx are most important.
  – Begin using more definitive Dx.

ICD-10 Guideline
• Signs/symptom and “unspecified” codes have acceptable, even necessary, uses. While specific diagnosis codes should be reported when they are supported by the available medical record documentation and clinical knowledge of the patient’s health condition, there are instances when signs/symptoms or unspecified codes are the best choices for accurately reflecting the healthcare encounter. Each healthcare encounter should be coded to the level of certainty known for that encounter.

Specificity
• Signs and symptoms that are associated routinely with a disease process should not be assigned as additional codes, unless otherwise instructed by the classification.

CG: Remove codes that are no longer relevant to the visit. Check with provider, establish protocols.

ICD Tells a Story
• Visit 1 Hematuria –
  – R31.0 Gross hematuria
• Visit 2 Cysto finding Lateral Wall and Posterior Wall lesions
  – D49.4 Neoplasm of unspecified behavior of bladder
• Visit 3 TURBT Lateral Wall and Posterior Wall lesions
  – D49.4 Neoplasm of unspecified behavior of bladder
ICD Tells a Story (continued)

- Visit 4 – 9 – BCG 6 monthly treatments
  - D51.12 Encounter for antineoplastic immunotherapy
  - C67.2 Malignant neoplasm of lateral wall of bladder
  - C67.4 Malignant neoplasm of posterior wall of bladder
- Visit 10 – Follow-up/Surveillance Cytology Negative
  - Z85.51 Personal history of malignant neoplasm of bladder
- Visit X Recurrent Tumor Lateral Wall
  - D49.4 Neoplasm of unspecified behavior of bladder
  - or C67.2 Malignant neoplasm of lateral wall of bladder

PRIORITIZE

- IF a full Hx is difficult to tie to Dx. Focus on measured co-morbidities.
- PQRS:
  - CKD
  - Hypertension
  - Heart Disease/Failure
  - COPD
  - Osteoporosis
  - Rheumatoid Arthritis
  - Cancer
  - BMI-Obesity
  - Diabetes

CHAPTER 1

- SECTION 1. a. Infections resistant to antibiotics
  - Many bacterial infections are resistant to current antibiotics. It is necessary to identify all infections documented as antibiotic resistant. Assign a code from category B16, Resistance to antimicrobial drugs, following the infection code only if the infection code does not identify drug resistance.

ICD-10 Phase II

- APMs
- Quality Measures
- Treatment guidelines
- Outcome measures
- Quality rankings
- EMR conundrum

Reporting Additional Diagnoses from the Indications

- Report all documented conditions that coexist at the time of the encounter/visit, and require or affect patient care treatment or management
- Do not code conditions that were previously treated and no longer exist
- History codes may be used as secondary codes if the historical condition or family history has an impact on current care or influences treatment

CHAPTER 1

- SECTION 1. b. Infectious agents as the cause of diseases classified to other chapters
  - Certain infections are classified in chapters other than Chapter 1 and no organism is identified as part of the infection code. In these instances, it is necessary to use an additional code from Chapter 1 to identify the organism. A code from category B95, Streplococcus, Staphylococcus, and Enterococcus as the cause of diseases classified to other chapters, or B97, Viral agents as the cause of diseases classified to other chapters, is to be used as an additional code to identify the organism. An instructional note will be found at the infection code advising that an additional organism code is required.

ICD-10 Phase II

- Focus on the Future
- Capture what you know
  - Do not get bogged down in details you are not expected to know
  - Use your extenders
  - Work with your EMR not against it.
  - Expand History Intake forms
  - Increase communication with PCP and other Providers

CHAPTER 4

- a. Diabetes mellitus
  - The diabetes mellitus codes are combination codes that include the type of diabetes mellitus, the body system affected, and the complications affecting that body system. As many codes within a particular category as are necessary to describe all of the complications of the disease may be used. They should be sequenced based on the reason for a particular encounter. Assign as many codes from categories E08 – E13 as needed to identify all of the associated conditions that the patient has.
CHAPTER 4
- a. Diabetes mellitus
  - 2) Type of diabetes mellitus not documented
- 3. Diabetes mellitus and the use of insulin
- 4. If the documentation in a medical record does not indicate the type of diabetes but does indicate that the patient uses insulin, code E11, Type 2 diabetes mellitus, should be assigned. Code Z79.4, Long-term (current) use of insulin, should also be assigned to indicate that the patient uses insulin.

CHAPTER 9
- a. Hypertension
  - 1) Hypertension with Heart Disease
- 2) Hypertensive Chronic Kidney Disease
  - a. Hypertension

CHAPTER 9
- 8) Hypertension, Controlled
- 9) Hypertension, Uncontrolled

CHAPTER 10
- a. Chronic Obstructive Pulmonary Disease (COPD) and Asthma
  - 1) Acute exacerbation of chronic obstructive bronchitis and asthma

CHAPTER 13
- d. Osteoporosis
- 2) Osteoporosis with current pathological fracture
- 3) Osteoporosis without pathological fracture

CHAPTER 13
- 1/29/2016
Scenario 1

- Patient referred for insertion of catheter and evaluation due to urinary retention and scrotal edema from Nursing home.
- HPI: Pt. with COPD, hypertension and CHF. Noted to be in retention at nursing home was transferred to Urologist as nursing staff unable to pass catheter. Patient also has severe edema of scrotum.
- Assessment: Catheter passed successfully after multiple attempts due to edematous tissue in penile shaft and scrotum. Will wait for diuresis completion to reevaluate need for treatment of penile and scrotal edema.

Scenario 1 Answer

- R33.9 - Retention of urine, unspecified
- N48.89 - Other specified disorders of penis
- N50.8 - Other specified disorders of male genital organs
- J44.9 - Chronic obstructive pulmonary disease, unspecified
- I10 - Essential (primary) hypertension
- I50.9 - Heart failure, unspecified

Scenario 2

- Patient presents today for discussion of pathology relative to recent TURP for BDO. This pleasant black 70 yr old male is a former smoker with diabetes under the care of Dr. Jones. He had a TURP two weeks prior, recovery is on schedule. Path report for specimen sent returned Neoplasm of Uncertain Behavior. Today we discussed next steps and concerns with Dx. 35 minutes spent in discussion of options to include watchful waiting, external beam, cryotherapy, seeds and robotic Prostatectomy. Pt. will consider options and return in 2 weeks.

Scenario 2 Answer

- D40.0 - Neoplasm of uncertain behavior of prostate
- E11.9 Type 2 diabetes mellitus without complications
- Z87.891 Personal history of nicotine dependence

Scenario 3

- PT is 70 yrs female complaining of infections, intermitent for several years. The problem is located in urinary tract and is described as severe. No relation to other activities. She uses antibiotics and cranberry juice to try to treat. Also complains of mixed incontinence and presents today for evaluation of UTI and incontinence.
- PMFSH:
  - Anemia
  - Anxiety Disorder
  - Atrial Fibrillation
  - Arthritis
  - Depression
  - Diabetes Mellitus: type 2
  - Diabetic Neuropathy
  - GERD
  - Glaucoma
  - Hyperlipidemia
  - Hypertension
  - IBS
  - Osteoarthritis
  - Supraventricular tachycardia
  - Throat mass
  - Tracheal mass
- Plan - antibiotics daily with C and S follow up one week. Urodynamics after antibiotic course for evaluation of incontinence complaint.

Scenario 3 Answer

- R32 - Unspecified urinary incontinence
- N39.0 - Urinary tract infection, site not specified
- E11.40 - Type 2 diabetes mellitus with diabetic neuropathy, unspecified
- I10 - Essential (primary) hypertension
- M19.90 - Unspecified osteoarthritis, unspecified site
- D64.9 - Anemia, unspecified
- I48.91 - Unspecified atrial fibrillation
- I47.2 - Ventricular tachycardia
- E78.5 - Hyperlipidemia, unspecified
### Scenario 3

<table>
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<tr>
<th>Scenario</th>
<th>Detail</th>
<th>Value</th>
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*Note: Details not fully visible due to image resolution.*
Thursday, February 25, 2016
3:50 p.m. – 4:15 p.m.

Mesh is Passe in 2016: Apical Support Without Mesh is Superior
Saad Juma, MD

The number of American women with Pelvic Organ Prolapse (POP) will increase 46% from 3.3 million in 2010 to 4.9 million in 2050. The incidence of POP at age ≥80 years is 4.1%. POP surgery rate peaks at age 71, and the lifetime risk for POP surgery is 12.6% by age 80. POP is a functional problem that impairs quality of life for women, but it is not a life-threatening condition. It is currently accepted that POP situated above the hymenal ring is physiological with aging, and may not require surgical repair if asymptomatic. Taking all these factors and demographics into consideration, the treatment of POP should be individualized and the choice of management options including surgical technique needs to be selective and appropriate. The choice of a surgical technique or another should be made between the patient and their surgeon. While no surgical technique is ideal for all patients, it is imperative that when one consider a surgical technique, we should look at it’s subjective outcome, objective outcome, the rate and nature of the associated morbidity, as well as the rate of re-operation or use of other means (e.g. pessary) to treat the same patient. Abdominal repair of POP, including robotic assisted repair though minimally invasive, it is not associated with minimal risk. In contrast, the vaginal approach for repair of POP is associated with shorter operative time and hospital stay, lower risk of serious adverse events, and quicker recovery.

In summary, though the vaginal approach for POP repair may not be ideal for all patients, it is certainly the most popular and the most commonly performed repair of POP because it is minimally invasive and is associated with minimal risk of serious adverse events.

Friday, February 26, 2016
7:00 a.m. – 8:30 a.m.

SUFU Biostatistics Review Course
Jennifer Wu, MD, MPH
April Slee, MS

Outline

I. Study Design (~ 30 min maximum)
   A. Overview of study design
   B. Types of study design
      i. Randomized trials
      ii. Case report/Case series
      iii. Cross sectional study
      iv. Cohort studies
      v. Case-control studies
   C. Determining the study design of example abstracts

II. Introductory Statistics (~ 30 min maximum)
   A. Statistical comparisons
      a. Descriptive statistics
         i. Choice of statistics to summarize variables
         ii. Which statistical test to use (for 2 and 3 groups)
      b. Outcomes
         i. Choice of models for various outcomes
         ii. Least-square means, hazard ratios, risk ratios and odds ratios
         iii. P-values and confidence intervals

III. Practice Questions and Examples; Q&A (~ 30 min minimum)
Initial Approach to PPI
Craig V. Comiter, MD

Surgery is the most efficacious treatment for postprostatectomy incontinence. The ideal surgical approach depends on a variety of patient factors including history of prior incontinence surgery or radiation treatment, bladder contractility, severity of leakage, and patient expectations. Most patients choose to avoid a mechanical device, opting for the male sling over the artificial urinary sphincter. The modern male sling has continued to evolve with respect to device design and surgical technique. Different types of slings address sphincteric incompetence via different mechanisms of action. The recommended surgery, however, must be individualized for the patient based on degree of incontinence, detrusor contractility, and urethral compliance. A thorough urodynamic evaluation is therefore indicated for the majority of patients, and recommendation for an artificial urinary sphincter, a transobturator sling, a quadratic sling, or an adjustable sling will depend on urodynamic findings and the patient’s particular preference. Evolution in this field continues, with advancements in our understanding of the pathophysiology of incontinence, mechanism of action of various devices, and continued improvements in device design.

The modern male sling has evolved with respect to both design and surgical technique from the original Kaufman prosthesis to the pubourethral sling, to the perineal BAMS, to the non-compressive TO sling, and most recently to the quadratic sling that combines the mechanisms of action of the predecessor devices. No single device should be considered exclusively as the gold-standard option for treating PPI. Rather, different devices are best-suited for patients depending on prior history of radiation or incontinence surgery, degree of leakage, and bladder contractility.

In a man demonstrating leakage with straining that stops at the cessation of the straining maneuver, the diagnosis of ISD can made without further testing. A voiding diary is sufficient to demonstrate sufficient bladder capacity, and a bladder scan can evaluate the patient’s ability to adequately empty his bladder. However, the bladder contractility can only be ascertained by detailed urodynamic evaluation. With the recent expansion of therapeutic options for treating SUI, a thorough evaluation should include pad weight and urodynamic studies -- to best direct specific surgical therapy.

Adequate urethral tissue compliance is necessary for successful urethral compression and/or proximal repositioning with a sling. Radiation and previous AUS explantation, both of which may result in a relatively non-compressible urethra, are associated with diminished sling efficacy. With the exception of the occasional patient with persistent mild to moderate SUI following prior sling, with a positive repositioning test, AUS implantation is the treatment of choice for persistent PPI because it can provide the circumferential urethral compression necessary for adequate coaptation even in the setting of diminished urethral compliance.

In men who have not been radiated and have not had prior incontinence surgery, factors such as degree of leakage, proximal urethral mobility, and detrusor contractility can help determine the preferred surgical approach. In those with 200 g/d leakage and a positive repositioning test or adequate urethral mobility on video urodynamics, retroluminal or quadratic sling is the preferred approach, because of the lower complication rates compared to AUS placement, and the fact that neither sling complicates future AUS placement. With detrusor underactivity, the RTS may be preferred, given its non-compressive mechanism of action. For those with 200-400 g/d leakage, the quadratic sling may be preferred, given the compressive nature of this surgical device, providing superior resistance compared to a purely TO approach that relies on adequate residual sphincter function. However, adequate detrusor contractility is necessary to overcome the resistance of this compressive device. In the setting of detrusor underactivity in this group with moderate incontinence, AUS is preferred. With leakage > 400 g/day, AUS is the recommended option, but in the patient who refuses a mechanical device, a compressive sling is recommended over a non-compressive sling.

The evaluation and management of PPI has changed and improved dramatically over the past 2 decades. Further innovations in sling design are likely to continue, as this field continues to evolve.
Chemodenervation Update Drug Delivery - Can We Do Better?
Pradeep Tyagi PhD, University of Pittsburgh

Chemodenervation is a new treatment approach which selectively targets the neurogenic factors responsible for OAB and neurogenic detrusor overactivity (NDO) by using neurotoxins to block the neurotransmitter release from the afferent and the efferent nerves controlling micturition. This presentation will discuss the limitations of the existing approach and present the promise and potential of drug delivery in developing an injection-free approach for chemodenervation.

Basic research has shown that FDA approved intradetrusor injection of onabotulinumtoxin A can impair both the efferent and the afferent neurotransmission, whereas instillation of capsaicin or resinf eratoxin (RTX) impairs only the afferent neurotransmission. Onabotulinumtoxin A was found safe and effective in several large multicenter randomized controlled trials conducted on patients with NDO and OAB refractory to anticholinergics. Treated patients showed significant improvement in bladder storage symptoms; however, the incidence of increased post-void residual (PVR) urine volume and urinary tract infection (UTI) was higher than in the placebo arms. In contrast, clinical studies with capsaicin and RTX did not demonstrate consistent efficacy in NDO, and these vanilloids also provoked pain on instillation.

The optimal dose of onabotulinumtoxin A for NDO is not yet known because measures of clinical efficacy and safety were found to be similar following intradetrusor injection of 200IU or 300IU. The potency of onabotulinumtoxin A is sensitive to both volume and the depth of intradetrusor injection. Different pharmaceutical formulations of toxin may have different diffusion characteristics due to differences in molecular size and pharmacological action. Therefore, potency units are not interchangeable between different preparations. Several groups have attempted to understand the toxin migration in bladder by intradetrusor injection of onabotulinumtoxin A mixed with a MRI contrast agent. Although, this approach makes an erroneous assumption about the similarity in migration of contrast agent and toxin in bladder tissue; nevertheless, contrast agents of different polarity and structure were able to shed light on the migration of drug substances injected into the human detrusor.

There are several impediments in achieving the goal of injection-free chemodenervation. These include toxin degradation by proteases and proteinases in urine, toxin dilution in urine, and poor bladder uptake of large macromolecule such as onabotulinumtoxin A across the urothelium. Aqueous insolubility is not a concern for onabotulinumtoxin A, but it is the major hindrance in the intravesical delivery of capsaicin and RTX. Bladder uptake of instilled onabotulinumtoxin A in neurogenic rat bladder was facilitated following urothelium denudation with protamine sulfate. However, the approach of urothelium denudation may not be viable for clinical use. Therefore, DMSO was used instead of protamine for increasing the bladder permeability in pre-clinical and clinical studies involving onabotulinumtoxin A instillation. An open labelled study on 21 OAB patients reported significant improvement in symptom scores after instillation of onabotulinumtoxin A mixed with DMSO, but it was missing a control group.

Liposomes (lipid vesicles) have been extensively studied as a drug delivery platform for anticancer drugs, and several such products have received FDA approval. Instead of compromising the bladder permeability with cationic peptide (protamine) or organic solvents (DMSO or 10% ethanol), liposomes rely on endocytosis of vesicles bound to cell membrane for the delivery of capsaicin and onabotulinumtoxin A. Benchtop studies showed that the complexation of botulinum toxin A with liposomes enhanced the enzymatic activity of toxin and reduced its proteolytic degradation, which is relevant in understanding the successful intravesical delivery of onabotulinumtoxin A with liposomes.

Instillation of onabotulinumtoxin A complexed with liposomes was able to significantly reduce the chemically induced rat bladder overactivity. Basic research prompted a multi-center placebo controlled study for assessing the safety and efficacy of onabotulinumtoxin A complexed with liposomes in OAB. Treatment successfully reduced the urinary frequency and urgency, but the treatment was unable to cause significant reduction in urge urinary incontinence episodes. Also, instillation of onabotulinumtoxin A complexed with liposomes did not raise PVR to require clean intermittent catheterization. Risk of UTI was similar between placebo and treatment arms. It can be inferred that instillation of onabotulinumtoxin A can successfully impair the afferent neurotransmission of micturition without provoking the pain typically associated with capsaicin and RTX. However, the impairment of efferent neurotransmission may not be achieved with instillation of onabotulinumtoxin.
A. Injection-free delivery of onabotulinumtoxin A has also been attempted with electromotive force (EMF) and thermosensitive hydrogel. EMF using 10mA for 15min successfully delivered a dose 10IU/kg to bladder of 15 children with myelomeningocele and NDO. Treatment improved the vesicoureteral grade and bladder capacity, but skin erythema and burning sensation was noted in 6 subjects. Urogen is currently testing thermosensitive hydrogel for delivering onabotulinumtoxin A to OAB patients in Europe after reporting preliminary success in a pilot study on IC/PBS patients.

Another company, Revance was able to achieve delivery of onabotulinumtoxin A to the face by its chemical fusion with cell penetrating cationic peptide (TAT) that is structurally and functionally similar to protamine. A similar approach could be envisioned in urology, where drug delivery platforms can help overcome the drawbacks of intradetrusor injection, increase patient acceptance, and reduce the cost of treatment. Further studies are needed to determine the optimal dose, efficacy, and tolerability of long-term drug delivery platforms for intravesical onabotulinumtoxin A.

Selected References
Friday, February 25, 2016
5:00 p.m. – 6:00 p.m.

Controversies in Neuromodulation
Kevin, Benson, MD

As neuromodulation continues to develop as a preferred treatment option for a number of pelvic floor disorders so do the controversies that surround the use of neuromodulation therapy.

Most practitioners utilize neuromodulation currently. However, many areas of use are not well defined and implementation of the therapy currently is highly variable. Over 200,000 implants have been performed worldwide, with this growth comes the need to define best practices.

This forum is an opportunity to discuss many “off label” uses and techniques associated with neuromodulation. The discussion will be an exchange of ideas with participation from audience members.

We will focus on a variety of issues including the following:

1. Is there a role for synergistic treatments?
2. What form of neuromodulation is best?
3. SNM vs Botox vs PTNS are they exclusionary?
4. Multiple nerve targets?
5. Does the MOA differ for urinary and fecal indications?
6. Why do some patients respond differently to different forms of neuromodulation?
7. Does failure to one form of neuromodulation rule out others?
8. Is there a role for bilateral stimulation?
9. When is pudendal nerve stimulation appropriate?
10. Role for EMG testing?
11. When do you move past neuromodulation?
12. Is there a role for treatment of pelvic pain/Interstitial Cystitis
13. How do you determine whether the issue is therapy failure vs. placement/programming?
14. What are best perioperative practices?
15. How do you stay connected with patients once implanted?

Given the paucity of data surrounding the above topics our goal is to have an open forum to help guide clinical practice to optimize the role for neuromodulation in your practice.
Fecal Incontinence
Kevin Benson

Fecal Incontinence is a common, overlooked clinical problem. Fecal incontinence is now commonly known as accidental bowel leakage (ABL). ABL affects 9-24% of community dwelling women. Risk factors for ABL include vaginal delivery, aging, and chronic diarrhea.

Evaluation for ABL begins with simple questions. Often patients are embarrassed and will not share information unless asked. Many questionnaires are available to query patients. It is the clinician’s desire to investigate that makes the difference in whether the patient lives in silence or receives help.

Basic clinical evaluation begins with a history, specifically looking for inflammatory bowel disease, malignancy and malabsorption. A detailed obstetrical history is also helpful. Operative delivery and perineal trauma are major risk factors. Dietary intake and review of stool consistency is also obligatory.

Physical exam is straightforward and looks for signs of perineal trauma (dovetail sign) and disrupted anal sphincter. Pelvic floor muscle tone, coordination and perineal descent are also evaluated. Many tools are available to evaluate ABL.

It is debatable whether invasive testing is needed to treat ABL in the era of SNM. Several studies point to similar outcomes whether a basic evaluation is performed or testing is conducted.

Testing has a role to answer specific clinical questions and to determine more complex etiologies when a patient does not respond to basic therapy. Therefore testing is generally used today in a research environment or to tackle more complex, refractory problems.

Digital Rectal Exam (DRE) is perhaps the most overlooked clinical tool available. Many studies reveal that, when compared to more invasive and expensive testing, DRE has a 75% sensitivity to detect meaningful pathology! Anorectal manometry (ARM) uses a pressure transducer to measure rectal sensation, distensibility, and anal sphincter resting and squeeze pressures. ARM is useful to determine the nature of fecal incontinence and to determine why a patient may be refractory to management.

Endo Anal Ultrasound (EAU) is a useful tool to evaluate the internal and external anal sphincter. This testing modality is considered the standard for detecting anal sphincter defects.

Pudendal Nerve Terminal Motor Latency Testing (PNTML) measures pudendal nerve reflex arc time. The test is used to evaluate for neurologic defects in the pudendal nerve reflex arc. Such defects are thought to influence fecal continence. Normal latency is less than 2 milliseconds. Prolonged latency is thought to be a risk factor for fecal incontinence. Currently it is not clear whether prolonged latency has any clinical implications however.

Colonic Transit Studies is commonly known as the Sitz Marker test. Transit studies are underutilized and help to determine constipation type. Constipation can be a risk factor for ABL due to overflow incontinence. The test helps differentiate between slow transit constipation and pelvic outlet dysfunction. The test is administered after five days off laxatives. One ingests radiopaque markers. An abdominal radiograph is obtained after 3 days. Normally one expels 80% of markers by day three. If markers are diffuse throughout the colon, indicating slow transit constipation. If the majority of the markers are found in the distal rectum it points to pelvic floor dysfunction as the cause.

Treatment options for ABL
Generally care starts with conservative measures. The leading cause for ABL is chronic loose stools/diarrhea. Treatment with constipating agents is first line treatment. Imodium is the leading agent used. Imodium can be titrated and is very safe. One may take a maximum of 8 tablets daily. In addition some may benefit from low residue diet. Bulking agents may help regulate stool frequency as well.

Physical therapy with biofeedback has variable success and is an easy and safe tool to use early in the treatment process.

If conservative dietary changes and Imodium are not successful then other options may be explored.
Anal sphincterplasty has been the surgical procedure of choice for decades for ABL. The efficacy of the procedure is now called into question. Anal sphincterplasty either approximates or overlaps the internal and external anal sphincter to restore continence. Most anal sphincter injuries occur with childbirth. Unfortunately most are not symptomatic until years later. It appears this latency plays a role in the procedure’s lack of success. There is still a role for sphincterplasty in treating acute obstetrical sphincter injury; however defects discovered years later are unlikely to be successfully treated with this procedure.

Sacral neuromodulation (SNM) is emerging as the “go to” treatment of ABL due to most causes. SNM has been used since 1997 for treatment of urinary incontinence. More recently SNM has been FDA approved to treat ABL. SNM for ABL uses the same technique and equipment as when used to treat urinary incontinence. The mechanism by which SNM treats ABL is unique. It appears SNM does not act directly on the anal sphincter but rather through increased afferent sensory modulation. Studies support several rectal changes induced through SNM. SNM increases rectal awareness and compliance. SNM also increases retrograde impulses in the colon suppressing urge. SNM may also enhance the rectal inhibitory reflex (RAIR). Interestingly the presence of an anal sphincter defect < 120 degrees does not appear to affect the success of SNM. Multiple long-term studies support SNM as first line treatment for ABL. Published 5 year data show approximately 90% of patients respond with improvement in both ABL and health related quality of life measures.

Artificial anal sphincter and muscle transposition surgery are beyond the scope of this talk and have minimal utility and availability in the U.S. currently.

A new innovative surgical treatment for ABL is emerging. The Transobturator Posterior Anal Sling (TOPAS) is minimally invasive support procedure designed to enhance the fecal continence. Although the mechanism of action is not well understood, it is thought that the TOPAS procedure improves fecal control by supporting the puborectalis muscle. Recently published data regarding TOPAS will be presented at this lecture.
Friday, February 26, 2016
5:00 p.m. – 6:00 p.m.

Pelvic Floor Health and Rehabilitation
Kelly Scott, MD
Pamela Janssen, PT, CLT-LANA
Sara Reardon, PT, DPT, WCS, BCB-PMD

“Underactive” PFM are lacking in strength or endurance. “Overactive” PFM are short, tight, often in spasm, and tender to palpation. Many patients present with a combination of both underactive and overactive PFM. “Downtraining” is typically indicated when the PFM are overactive. “Uptraining” is indicated when the PFM are underactive. When the patient has both conditions, downtraining may be performed first to restore the patient’s normal muscle length, followed by uptraining. Anecdotal evidence suggests that uptraining overactive pelvic floor muscles can lead to significantly worse pelvic floor dysfunction and symptoms.

**Uptraining**
- Aims to increase strength and endurance of the pelvic floor muscles (PFM).
- Consists of pelvic floor muscle contractions (Kegels) including endurance holds, quick flicks, the Knack, or elevator-type exercises
- Additional techniques include: urge suppression, vaginal or rectal electrical stimulation, and vaginal weight/cone training
- Can be performed with or without biofeedback
- Clinical conditions which are usually associated with underactive pelvic floor muscles and for which uptraining is typically appropriate include:
  - Stress urinary incontinence
  - Urinary urgency/frequency/incontinence
  - Pelvic organ prolapse

**Downtraining**
- Aims to improve relaxation and length of the PFM
- Consists of myofascial release, scar/connective tissue mobilization, diaphragmatic breathing, mental imagery, paradoxical relaxation, yoga and stretches, vaginal or anal dilation, rectal balloon catheter training, visceral mobilization, and dry needling
- Can be performed with or without biofeedback
- Research does not support use of PFM contractions or intravaginal or intrarectal electrical stimulation
- Clinical conditions associated with overactive PFM for which downtraining appropriate:
  - Urinary urgency/frequency/incontinence
  - Incomplete bladder emptying
  - Interstitial Cystitis
  - Dysuria
  - Pelvic pain/pelvic floor myofascial pain
  - Vulvodynia/Vestibulodynia
  - Vaginismus/ Dyspareunia
  - Pudendal neuralgia
**Treatment Algorithm for Pelvic Floor Dysfunction**

**Pelvic Floor Muscle Assessment** (Strength, Tension, Symmetry, Pain)

- **Underactive PFM**
  - Weak, lengthened muscles
  - Do not voluntarily contract when appropriate
    - Pregnancy/childbirth, prolonged stretch, straining, aging
  - Supportive Dysfunction/ Prolapse
    - Urinary or anal incontinence
  - Strengthen weak, lengthened pelvic floor muscles
  - Restore support

- **Combination**
  - Short, tight muscles mask underlying weakness
  - Contraction feels weak but actually spasm
  - May tense muscles to prevent leakage or prolapse
  - Supportive Dysfunction/ Prolapse
    - Urinary or anal incontinence
    - Defecatory Dysfunction
  - Downtrain to restore normal length and tone
  - Follow by uptraining if indicated

- **Overactive PFM**
  - Short, tight muscles
  - Impaired relaxation or coordination
  - Preceded or exacerbated by stressor or trauma
  - Pelvic Pain
    - Sexual Dysfunction
    - Voiding or Defecatory Dysfunction
  - Decrease tension, spasm
  - Restore optimal length
  - Follow by uptraining if indicated

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**How to find a Pelvic Floor Physical Therapist:**
American Physical Therapy Association: Section on Women’s Health

Herman and Wallace: A Pelvic Rehab Institute
Practitioner Directory: [https://hermanwallace.com/practitioner-directory](https://hermanwallace.com/practitioner-directory)

International Pelvic Pain Society
Find a Provider: [http://pelvicpain.org/patients/find-a-medical-provider.aspx](http://pelvicpain.org/patients/find-a-medical-provider.aspx)
*Basic Science Poster Session I (Non-Moderated)
Tuesday, February 23, 2016
5:50 p.m. – 7:50 p.m.
Judges: Matthew O. Fraser, PhD
Adam P. Klausner, MD
*Not CME Accredited

Poster #BS1
VAGINAL MECHANICALLY-TRIGGERED ATP SIGNALING IS IMPAIRED IN OVARIECTOMIZED MICE
Jessica Harroche, MD¹; Sylvia Suadicani, PhD²
¹Department of OB/GYN, Montefiore Med. Ctr./Albert Einstein Coll. of Med., Bronx, NY; ²Department of Urology, Albert Einstein Coll. of Med., Bronx, NY
Presented By: Jessica Harroche

Poster #BS2
RABBIT BLADDER DETRUSOR SMOOTH MUSCLE (RDSM) IS A VISCOELASTIC-PLASTIC MATERIAL
Christopher Neal, BS¹; Jia B. Lin, BS²; Tanner M. Hurley, BS³; Eugene D. Bell, MD⁴; Anna S. Nagle, PhD⁴; Andrew F. Colhoun, MD⁴; Adam P. Klausner, MD⁵; John E. Speich, PhD⁴; Paul H. Ratz, PhD⁵
¹Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ²Department of Biochemistry, Virginia Commonwealth University School of Medicine, Richmond, VA; ³Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁵Departments of Biochemistry and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Christopher Neal

Poster #BS3
SLOWLY CYCLING ACTOMYOSIN CROSSBRIDGES (XBS) IN “RESTING” DETRUSOR SMOOTH MUSCLE (DSM) PERMITS SMART DAMPER-STYLE BLADDER BIOMECHANICAL BEHAVIOR
Jordan Southern, MD¹; Eugene D. Bell, MD²; Amy S. Miner, BA³; Anna S. Nagle, PhD⁴; Andrew F. Colhoun, MD²; John E. Speich, PhD⁴; Adam P. Klausner, MD⁵; Paul H. Ratz, PhD⁵
¹Department of Surgery, Geisinger Health System, Danville, PA; ²Department of Biochemistry, Virginia Commonwealth University School of Medicine, Richmond, VA; ³Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ⁴Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ⁵Departments of Biochemistry and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Eugene Bell

Poster #BS4
URETHRAL AND DETRUSOR DYSFUNCTION ARE DETERMINED BY THE SEVERITY OF A CONTUSION-SCI IN FEMALE RATS
Timothy Boone MD, PhD¹; Alvaro Munoz, PhD²
¹Houston Methodist Research Institute and Houston Methodist Hospital; ²Houston Methodist Research Institute
Presented By: Alvaro Munoz

Poster #BS5
THE ROLES OF EXTRACELLULAR SIGNAL-REGULATED KINASE SUBTYPE 1 (ERK1) IN MODULATING BLADDER PAIN AND PELVIC PAIN
Pooja Vijairania; Sherri Vogt; Robert Gereau, IV, PhD; H Henry Lai, MD
St. Louis, MO
Presented By: Henry Lai

Poster #BS6
EFFECT OF EARLY SACRAL AND PUDENDAL NEUROMODULATION ON THE LOWER URINARY TRACT IN SCI MINIPIGS
Elena Foditsch, PhD; Karin Roider, MSc; Prof. Karl-Dietrich Sievert, MD; Reinhold Zimmermann, MD
Department of Urology, Paracelsus Medical University, Salzburg, Austria
Presented By: Elena Foditsch
Poster #BS7
A NEW NON-SURGICAL TECHNIQUE FOR A MINIMALLY-INVASIVE COMPLETE SPINAL CORD LESION IN MINIPIGS
Elena Foditsch, PhD; Karin Roider, MSc; Prof. Karl-Dietrich Sievert, MD; Reinhold Zimmermann, MD
Department of Urology, Paracelsus Medical University, Salzburg, Austria
Presented By: Elena Foditsch

Poster #BS8
RECOVERY OF BLADDER FULLNESS SENSATION THROUGH THE REINNERVATED NEURONAL PATHWAY CREATED BY FEMORAL OR GENITOFEMORAL NERVE TRANSFER TO ANTERIOR VESICAL NERVE BRANCHES IN THE DECENTRALIZED CANINE BLADDER
Mary F. Barbe, PhD¹; Sandra Gomez-Amaya, DVM²; Alan Braverman PhD²; Neil Lamarre, PhD³; Michael Ruggieri, Sr., PhD²
¹Department of Anatomy and Cell Biology, Temple University School of Medicine; ²Temple University School of Medicine, Philadelphia, Pennsylvania; ³University of Wisconsin School of Veterinary Medicine, Madison, WI
Presented By: Mary Barbe

Poster #BS9
OAB WITHOUT AN “OVERACTIVE BLADDER”
James Hokanson, PhD; Christopher Langdale, MS; Warren Grill, PhD
Durham, NC
Presented By: James Hokanson

Poster #BS10
LONG TERM PERSISTENCE OF INCONTINENCE IN THREE STRESS INCONTINENCE RAT MODELS: VAGINAL DISTENSION, URETHROLYSIS, AND PUBO-URETHRAL LIGAMENT INJURY
Fuli Zhu, MD¹; Zhe Wang, MD²; Yan Wen, MD³; Yi Wei, BS⁴; Micah Chan, BS⁵; Bertha Chen, MD⁵
¹Department of Obstetrics/Gynecology, Beijing University Department of Ob/Gyn, Stanford University School of Medicine and Third Hospital, Beijing, People's Republic of China; ²Department of Ob/Gyn, Stanford University School of Medicine; ³Department of Ob/Gyn, Stanford University School of Medicine; ⁴Department of Ob/Gyn, Stanford University School of Medicine; ⁵Department of Ob/Gyn
Presented By: Bertha Chen

Poster #BS11
SYNCHRONIZED ELECTROMYOGRAPHIC CHARACTERIZATION OF THE LOWER URINARY TRACT IN NORMAL RATS: EFFECTS OF INTRAVESICAL P2X3R INHIBITION
Betsy Salazar, PhD¹; Chuan Zhang MS²; Yingchun Zhang, PhD²; Anthony Ford, PhD³; Timothy Boone, MD, PhD⁴; Alvaro Munoz, PhD¹
¹Houston Methodist Research Institute; ²University of Houston; ³Afferent Pharmaceuticals; ⁴Houston Methodist Research Institute and Department of Urology-Houston Methodist Hospital
Presented By: Alvaro Munoz

Poster #BS12
MICRORNAS AS POTENTIAL BIOMARKERS TO PREDICT RISK OF URINARY RETENTION FOLLOWING INTRADETRUSOR ONABOTULINUMTOXIN-A INJECTION
Christopher Chermansky, MD¹; Brian Kadow, MD²; Mahendra Kashyap, PhD²; Pradeep Tyagi, PhD³
¹UPMC Magee Womens; ²UPMC, Pittsburgh, PA; ³UPMC, Urology, PA
Presented By: Christopher Chermansky

Poster #BS13
IDENTIFICATION OF A DIVERSE FUNGAL COMMUNITY (“MYCOBIOME”) IN THE NORMAL FEMALE HUMAN LOWER URINARY TRACT
A. Lenore Ackerman, MD, PhD¹; Jennifer T. Anger, MD²; Karyn S. Eilber, MD²; Vincent Funari, PhD³; Jie Tang, PhD³; Jayyoung Kim, PhD³; Michael R. Freeman, PhD⁴
¹David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Department of Surgery, Division of Urology, Cedars-Sinai Medical Center, Los Angeles, CA; ³Department of Biomedical Sciences, Cedars-Sinai Medical Center, Los Angeles, CA; ⁴Departments of Biomedical Sciences and Surgery, Cedars-Sinai Medical Center, Los Angeles, CA
Presented By: A. Lenore Ackerman
Poster #BS14
LACTOBACILLUS IN THE URINARY MICROBIOME OF WOMEN WITH STRESS INCONTINENCE
Bhumy Davé, MD¹; Melinda Abernethy, MD²; Jarrad Hampton-Marcell, MSc³; Alex Alverdy, BS⁴; Amy B. Rosenfeld, PhD⁵; Alix Leader-Cramer, MD¹; Bochenka Katarzyna, MD¹; Neil Gottel, MSc⁵; Mueller Margaret, MD¹; Lewicky-Gaupp Christina, MD¹; Gilbert Jack, PhD⁶; Kenton Kimberly, MD⁶
¹Division of Female Pelvic Medicine & Reconstructive Surgery, Northwestern University Feinberg School of Medicine, Chicago, IL; ²Division of Female Pelvic Medicine & Reconstructive Surgery, Johns Hopkins University School of Medicine; ³Institute for Genomic and Systems Biology, Argonne National Laboratory, Argonne, IL; ⁴Northwestern University Feinberg School of Medicine, Chicago, IL; ⁵Department of Microbiology and Immunology, Columbia University, New York, NY; ⁶Department of Obstetrics and Gynecology and Department of Urology, Division of Female Pelvic Medicine & Reconstructive Surgery, Northwestern University Feinberg School of Medicine, Chicago, IL
Presented By: Bhumy Davé

Poster #BS15
A SINGLE INSTITUTION REVIEW OF PATIENTS WITH NEPHROGENIC ADENOMA
Yi Yooni, MD¹; Angela Wu, MD²; Anne Pelletier-Cameron, MD²
¹University of Michigan, Ann Arbor, MI; ²Ann Arbor, MI
Presented By: Yooni Yi

Poster #BS16
LATE INTERMITTENT SACRAL NEUROSTIMULATION SIGNIFICANTLY INCREASES BLADDER CAPACITY
Bradley A. Potts, BS¹; Danielle J. Degoski, BS²; Jillene M. Brooks, MS²; Andrew C. Peterson, MD³; Dwight E. Nelson, PhD⁴; Thaddeus S. Brink, PhD⁴; Matthew O. Fraser, PhD³,⁵
¹Duke University Medical School, Durham, NC; ²Institute for Medical Research, Durham, NC; ³Division of Urology, Duke University Medical Center, Durham, NC; ⁴Global Neuromodulation Research, Medtronic Inc., Minneapolis, MN; ⁵Durham Veterans Affairs Medical Center, Durham, NC
Presented By: Bradley Potts

Poster #BS17
BRAIN RESPONSES TO BLADDER FILING IN HEALTHY ADULTS: A META-ANALYSIS OF NEUROIMAGING STUDIES
Nisha Arya¹; Steven Weissbart, MD²; Sihua Xu¹; Hengyi Roa, PhD³
¹Center for Functional Neuroimaging, University of Pennsylvania, Philadelphia, PA; ²Division of Urogynecology and Pelvic Reconstructive Surgery, University of Pennsylvania, Philadelphia, PA; ³Center for Functional Neuroimaging, Department of Neurology, University of Pennsylvania, Philadelphia, PA
Presented By: Steven Weissbart

Poster #BS18
INOSINE ATTENUATES SPONTANEOUS AND EVOKED ACTIVITY IN NEUROGENIC BLADDER THROUGH AN ADENOSINE RECEPTOR-MEDIATED PATHWAY.
Claire Doyle, PhD¹; Yeun Goo Chung, MD, PhD¹; Mattias Schäfer, MD¹; Bryan Sack, MD¹; Kyle Costa, BSc²; Vivian Cristofaro, PhD²; Maryrose P Sullivan, PhD²; Rosalyn M Adam, PhD¹
¹Boston Children’s Hospital & Harvard Medical School, Boston, MA; ²VA Boston Healthcare System, West Roxbury & Harvard Medical School, Boston, MA
Presented By: Claire Doyle
Abstract Summaries

Basic Science Poster Session II (Non-Moderated)
Wednesday, February 24, 2016
4:25 p.m. – 6:40 p.m.
Judges: Christopher J. Chermansky, MD
Tomas L. Griebling, MD, MPH

*Not CME Accredited

Poster #BS19
MODELING CATHETER FLOW RESISTANCE TO DETERMINE OPTIMAL SUPRAPUBIC TUBE DIMENSIONS
Calvin Lee, BSE¹; Bradley Gill, MD, MS²; Raymond Rackley, MD²
¹Cleveland Clinic Lerner College of Medicine, Cleveland, OH; ²Glickman Urological and Kidney Institute, Cleveland, OH
Presented By: Calvin Lee, BSE

Poster #BS20
MEDICAL STUDENT ROBOTIC SIMULATOR PERFORMANCE DOES NOT CORRELATE WITH THEIR USMLE SCORES
Meghan Griffin, DO; Mireya Diaz-Insua, PhD; Solafa ElShatanoufy, MD; Humphrey Atiemo, MD
Henry Ford Hospital, Detroit, MI
Presented By: Megan Griffin

Poster #BS21
EFFECT OF HUMAN CHORIONIC GONADOTROPHIN ON IN VITRO CONTRACTIONS OF STIMULATED DETRUSOR MUSCLE STRIPS OF FEMALE RATS
Diaa Rizk, MSc, FRCOG, FRCS, MD, Dip BA¹; Mohammed Fahim, MS, PhD²
¹College of Medicine and Medical Sciences, Arabian Gulf University; ²Faculty of Medicine and Health Sciences, United Arab Emirates University, Al-Ain, United Arab Emirates
Presented By: Diaa Rizk

Poster #BS22
NON-STEROIDAL TISSUE-SELECTIVE ANDROGEN RECEPTOR MODULATORS (SARMS) INCREASE PELVIC FLOOR MUSCLE MASS IN FEMALE OVARIECTOMIZED MICE
Suriyan Ponnusamy, PhD¹; Ryan Sullivan, DVM²; Heather Tillman, PhD²; Ramesh Narayanan, PhD¹
¹University of Tennessee Health Science Center, Memphis, TN; ²St. Jude Children's Hospital, Memphis, TN
Presented By: Ramesh Narayanan

Poster #BS23
INTRAVESICAL ADMINISTRATION OF ONABOTULIMUN TOXIN-A FOR A SHORT PERIOD OF TIME IMPROVES BLADDER FUNCTION IN RATS WITH SPINAL CORD INJURY
Alvaro Munoz, PhD¹; Carolina Rivera, MS¹; Timothy Boone, MD, PhD²; Rose Khavary, MD³
¹Houston Methodist Research Institute; ²Houston Methodist Research Institute and Houston Methodist Hospital; ³Houston Methodist Hospital
Presented By: Alvaro Munoz

Poster #BS24
LOCALIZED INHIBITION OF P2X7R IMPROVES GAP43 SPREADING, LOCOMOTION, AND BLADDER FUNCTION IN SCI RATS
Alvaro Munoz, PhD¹; Xiufeng Tang, MD²; Iman Yazdi, PhD¹; Carolina Rivera, MS¹; Robert Grossman, MD²; Ennio Tasciotti, PhD¹; Timothy Boone, MD, PhD³
¹Houston Methodist Research Institute; ²Houston Methodist Research Institute and Neurosurgery Department-Houston Methodist Hospital; ³Houston Methodist Research Institute and Urology Department-Houston Methodist Hospital
Presented By: Alvaro Munoz
Poster #BS25
NEUROPILIN 2 DELETION ENHANCES DETERUSOR CONTRACTILITY UNDER CONDITIONS OF BLADDER OUTLET OBSTRUCTION
Evalynn Vasquez, MD, MBA¹; Diane Bielenberg, PhD²; Vivian Cristofaro, PhD³; Maryrose Sullivan, PhD³; Rosalyn Adam, PhD⁴
¹Boston Children’s Hospital and Harvard Medical School, Boston, MA; ²Boston Children’s Hospital & Harvard Medical School, Boston, MA; ³VA Boston Healthcare System & Harvard Medical School, West Roxbury, MA; ⁴Boston Children’s Hospital & Harvard Medical School
Presented By: Rosalyn Adam

Poster #BS26
SELECTIVE PHARMACOLOGICAL INHIBITION OF PHOSPHODIESTERASE TYPE-1 AS A NOVEL APPROACH TO CONTROL HUMAN DETERUSOR SMOOTH MUSCLE FUNCTION
Wenkuan Xin, PhD¹; Ning Li, MD¹; Vitor Fernandes, PhD¹; Biao Chen, MD¹; Eric Rovner, MD²; Georgi V. Petkov, PhD
¹Columbia, SC; ²Charleston, SC
Presented By: Georgi Petkov

Poster #BS27
TRPV4 AND SK3 CHANNELS IN DETERUSOR PDGFRΑ+ CELLS CONTROL BLADDER FILLING
Haeyeong Lee, PhD; Byoung Koh, BS; Robert Corrigan, BS; Lauren Peri, BS; Brian Perrino, PhD; Toby Chai, MD; Kenton Sanders, PhD; Sang Koh, MD, PhD
Presented By: Haeyeong Lee

Poster #BS28
LOW AMPLITUDE RHYTHMIC CONTRACTIONS IN THE HUMAN DETERUSOR
Andrew Colhoun, MD¹; John Speich, PhD²; MaryEllen Dolat, MD¹; Eugene Bell, MD¹; Paul Ratz, PhD³; Robert Barbee, PhD⁴; Adam Klausnerr, MD⁴
¹Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ²Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ³Departments of Biochemistry and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Department of Emergency Medicine and Physiology, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Andrew Colhoun

Poster #BS29
SEX DIFFERENCES IN BLADDER DYSFUNCTION IN RESPONSE TO ENTERIC NEURONAL NFKB OVERACTIVATION AND EXPERIMENTALLY INDUCED COLITIS IN MICE
Alan Braverman, PhD; Yonggang Zhang, PhD; Wenhui Hu, PhD; Michael Ruggieri, Sr., PhD
Temple University School of Medicine, Philadelphia, PA
Presented By: Alan Braverman

Poster #BS30
IN VIVO INTEGRATION AND MECHANISM OF ACTION OF SMOOTH MUSCLE CELL PRECURSORS DERIVED FROM HUMAN PLURIPOTENT STEM CELLS
Yan Hui Li, PhD¹; Yan Wen, MD¹; Zhe Wang, MD¹; Yi Wei, BS¹; Morgaine Green, BS¹; Prachi Wani, MS³; Ganesh Swaminathan, PhD³; Anand Ramamurthi, PhD³; Renee Reijo Pera, PhD³; Bertha Chen, MD⁴
¹Department of Ob/Gyn, Stanford University School of Medicine; ²Department of Ob/Gyn, School of Medicine; ³Department of Biomedical Engineering, Cleveland Clinic Lerner College of Medicine, Case Western Reserve University; ⁴Department of Biomedical Engineering, Cleveland Clinic Lerner College of Medicine, Case Western Reserve University; ⁵Department of Cell Biology and Neurosciences and Department of Chemistry and Biochemistry, Montana State University; ⁶Department of Ob/Gyn
Presented By: Bertha Chen

Poster #BS31
CAVEOLAE-MEDIATED REGULATION OF ALPHA-1-ADRENOCEPTOR SUBTYPES IN OVERACTIVE BLADDERS FROM SPONTANEOUSLY HYPERTENSIVE RATS
Vivian Cristofaro, PhD; Sean D. Carey, BS; Subbarao V. Yalla, MD; Maryrose P. Sullivan, PhD
VA Boston Healthcare System, Harvard Medical School
Presented By: Vivian Cristofaro
Poster #BS32
MESH WOVEN FROM PURE COLLAGEN THREADS FOR TREATMENT OF STRESS URINARY INCONTINENCE  
Ahmad Khalifa, MD, MSc¹; Katherine Chapin ²; Anowarul Islam, MSc³; James Anderson, MD, PhD⁴; Adonis Hijaz, MD¹; Ozan Akkus, Phd²  
¹University Hospitals Case Medical Center, Cleveland, OH; ²Dept. Biomedical Engineering , Case Western Reserve University, Cleveland, OH; ³Dept. Mechanical and Aerospace Engineering , Case Western Reserve University, Cleveland, OH; ⁴Pathology, CWRU School of Medicine,Cleveland, Ohio  
Presented By: Ahmad Khalifa

Poster #BS33
PRECURSOR OF SMOOTH MUSCLE CELLS DERIVED FROM HUMAN PLURIPOTENT STEM CELLS FOR TREATMENT OF STRESS URINARY INCONTINENCE  
Zhe Wang, MD¹, Yan Wen, MD¹; Yan Hui Li, PhD²; Yi Wei, BS³; Morgaine Green, BS³; Prachi Wani, MS³; Pengbo Zhang, PhD³; Renee Reijo Pera, PhD³; Bertha Chen, MD⁵  
¹Department of Ob/Gyn, Stanford University School of Medicine; ²The Center of Preproductive Medicine, Ob/Gyn, Southern Medical University, Guangzhou, Guandong, The People's Republic of China; ³Department of Pathology, Stanford University School of Medicine; ⁴Department of Cell Biology and Neurosciences and Department of Chemistry and Biochemistry, Montana State University; ⁵Department of Ob/Gyn  
Presented By: Bertha Chen

Poster #BS34
ADIPOSE DERIVED MESENCHYMAL STEM CELL CONDITIONED MEDIA: A POTENTIAL INNOVATIVE ANTIMICROBIAL THERAPEUTIC FOR RECURRENT UTI  
Zhina Sadeghi, MD¹ ²; Tracey Bonfield, PhD³; Hooman Soltanian, MD⁴; Adonis Hijaz, MD¹,²  
¹Urology Institute, University Hospitals Case Medical Center; ²Department of Urology, Case Western Reserve University School of Medicine, Cleveland, OH; ³CTSC Bioanalyte Core and Cystic Fibrosis Lung Infection and Inflammation Modeling Core, Department of Pediatrics, Case Western Reserve University School of Medicine, Cleveland, OH; ⁴Department of plastic surgery, University Hospitals Case Medical Center, Cleveland, OH  
Presented By: Zhina Sadeghi

Poster #BS35
BLADDER MUCOSA RESPONDS DIFFERENTLY THAN DETRUSOR SMOOTH MUSCLE TO DEPOLARIZING STIMULUS – A NEW BLADDER REFLEX?  
Andrea H. Russo, MD¹; Darryl T. Martin, PhD²; Catherine Kil, BA³; Toby C. Chai, MD⁴  
¹Division of Urogynecology, Department of Obstetrics and Gynecology, Yale School of Medicine, New Haven, CT; ²Department of Urology, Yale School of Medicine, New Haven, CT; ³University at Buffalo, School of Medicine, Buffalo, NY; ⁴Division of Urogynecology, Department of Obstetrics and Gynecology, Yale School of Medicine, New Haven, CT, Department of Urology, Yale School of Medicine, New Haven, CT  
Presented By: Andrea Russo

Poster #BS36
ONABOTULINUM TOXIN’S EFFECT ON KCL INDUCED CONTRACTIONS OF PORCINE AND RAT BLadders  
Andrea H. Russo, MD¹; Darryl T. Martin, PhD²; Catherine Kil, BA³; Toby C. Chai, MD⁴  
¹Division of Urogynecology, Department of Obstetrics and Gynecology, Yale School of Medicine, New Haven, CT; ²Department of Urology, Yale School of Medicine, New Haven, CT; ³University at Buffalo, School of Medicine, Buffalo, NY; ⁴Division of Urogynecology, Department of Obstetrics and Gynecology, Yale School of Medicine, New Haven, CT, Department of Urology, Yale School of Medicine, New Haven, CT  
Presented By: Andrea Russo

Poster #BS37
SUCCINATE MODULATES BLADDER CONTRACTILITY VIA PROSTAGLANDIN E2 SECRETION.  
Monica Velasquez-Flores Bachelor; Philippe Cammisotto, PhD; Lysanne Campeau, MDCM, PhD, FRCSC  
Lady Davis Institute for Medical Research  
Presented By: Monica Velasquez Flores
Podium #1
CONFIRMATION OF TRANSVAGINAL PELVIC FLOOR MUSCLE INJECTION TEMPLATE: A CADAVER STUDY
Priyanka Gupta, MD¹; Michael Ehlert, MD²; Larry T. Sirls, MD³; Kenneth M. Peters, MD⁴
¹Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI; ²Metro
Urology, Minneapolis, MN
Presented By: Priyanka Gupta

Podium #2
MYOFASCIAL TRIGGER POINT DRY NEEDLING FOR PELVIC PAIN AND URINARY SYMPTOMS: AN INITIAL
SINGLE CENTER EXPERIENCE
Matthew Nielsen, MD¹, Erin Glace, MSPT/PRPC² and Kurt McCammon, MD¹
¹EVMS, Norfolk, VA; ²Urology of Virginia, Virginia Beach, VA
Presented By: Matthew Nielsen

Podium #3
EFFICACY OF ULTRA-VIOLET LIGHT ON BACTERIAL GROWTH AND BIOFILM PRODUCTION OF SELECTED
STRAINS OF UROPATHOGENIC ESCHERICHIA COLI AND PSEUDOMONAS AERUGINOSA
Chun-Jung Lin, MD; Leah Gandee; JT Hsieh, PhD; Philippe E. Zimmern, MD
UT Southwestern Medical Center, Dallas, TX
Presented By: Chun-Jung Lin

Podium #4
SAFETY AND PERFORMANCE OF A WIRELESS IMPLANTABLE TIBIAL NERVE STIMULATOR DEVICE, FOR THE
TREATMENT OF PATIENTS WITH OVERACTIVE BLADDER (OAB)
J. Heesakkers¹; J. van Breda¹; P. Van Kerrebroeck¹; A. Digesu³; S. Elneil³
¹Department of Urology, Radboud University Medical Center, The Netherlands; ²Department of Urology, Maastricht
University Medical Center, The Netherlands; ³Department of Neurourology, College Hospital for Neurology and
Neurosurgery, London – UCLH, UK; ⁴St. Mary's Hospital, Imperial College, London, UK
Presented By: John Heesakkers

Podium #5
MINIMALLY INVASIVE PROSTATIC URETHRAL LIFT (PUL) EFFICACIOUS IN A LARGE PERCENTAGE OF
POTENTIAL TURP CANDIDATES: MID-TERM RESULTS
Martin Schoenthaler, MD¹; Richard Berges, MD²; Miller Florian, MD³; Bastian Amend, MD³; Ulrich Wetterauer, MD, PhD⁴;
Karl-Dietrich Sievert, MD, PhD⁵
¹University Clinic, Freiburg, Germany; ²PAN Clinic, Cologne, Germany; ³University Clinic, Tubingen, Germany;
⁴University Clinic, Freiburg; ⁵SALK/PMU
Presented By: Karl-Dietrich Sievert

Podium #6
BASELINE FUNCTIONAL STATUS PREDICTS POSTOPERATIVE TREATMENT FAILURE IN NURSING HOME
RESIDENTS UNDERGOING TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)
Anne M Suskind, MD, MS¹; Louise C Walter, MD²; Shoujun Zhao, PhD³; Emily Finlayson, MD, MS³
¹UCSF Department of Urology; ²UCSF and San Francisco VA Division of Geriatrics; ³UCSF Department of Surgery
Presented By: Anne Suskind
Podium #7
THE IMPACT OF BODY COMPOSITION AND MUSCLE FUNCTION ON URINARY INCONTINENCE IN OLDER WOMEN: RESULTS FROM THE HEALTH, AGING AND BODY COMPOSITION STUDY
Anne M Suskind, MD, MS; Peggy Cawthon; Sanae Nakagawa; Leslee Subak; Ilse Reinders; Suzanne Satterfield; Steve Cummings; Alison Huang; Health ABC
UCSF Department of Urology
Presented By: Anne Suskind

Podium #8
ONABOTULINUMTOXINA THERAPY FOR MANAGEMENT OF OVERACTIVE BLADDER IN ELDERLY POPULATIONS: EVALUATION OF OUTCOMES AND ADVERSE EVENTS
Neha Talreja, MD¹; Ekene Enemchukwu, MD²; Victor Nitti, MD²
¹NYU Langone Medical Center, New York, NY
Presented By: Neha Talreja
LUTS/Voiding Dysfunction/Neurogenic Bladder – Moderated Poster Session
Thursday, February 25, 2016
1:00 p.m. – 2:20 p.m.
Moderators: Jerry G. Blaivas, MD
Anne M. Suskind, MD, MS

Poster #M1
PATIENT PERCEPTION OF URINARY TRACT INFECTION IS ASSOCIATED WITH DECREASED URINARY MICROBIAL DIVERSITY
Travis Price, MS¹; Evann Hilt, MS¹; Tanaka Dune, MD²; Elizabeth Mueller, MD, MS²; Cynthia Brincat, MD, PhD³; Linda Brubaker, MD, MS²; Alan Wolfe, PhD³; Paul Schreckenberger, PhD³
¹Microbiology and Immunology, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ²Female Pelvic Medicine and Reconstructive Surgery, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ³Microbiology and Pathology, Loyola University Chicago Stritch School of Medicine, Maywood, IL
Presented By: Travis Price

Poster #M2
DETECTING CLINICALLY RELEVANT MICROORGANISMS: WE CAN DO BETTER
Travis Price, MS¹; Evann Hilt, MS¹; Tanaka Dune, MD²; Cynthia Brincat, MD, PhD³; Linda Brubaker, MD, MS²; Elizabeth Mueller, MD, MS²; Alan Wolfe, PhD³; Paul Schreckenberger, PhD³
¹Microbiology and Immunology, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ²Female Pelvic Medicine and Reconstructive Surgery, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ³Microbiology and Pathology, Loyola University Chicago Stritch School of Medicine, Maywood, IL
Presented By: Travis Price

Poster #M3
SAME DAY UROGYNECOLOGY SURGERY: RATES OF ACUTE POSTOPERATIVE URINARY RETENTION WHEN USING SPINAL VERSUS GENERAL ANESTHESIA
Alexandriah Alas, MD¹; Ryan Hildago, BS¹; Luis Espaillat, MD²; Hemikaa Devakumar, MD²; G Willy Davila, MD¹; Eric Hurtado, MD¹
¹Cleveland Clinic Florida, Weston, FL; ²Cleveland Clinic Florida, Weston, FL
Presented By: Eric Hurtado

Poster #M4
DOES POST-VOID RESIDUAL AFTER BOTOX INJECTION PREDICT TREATMENT RESPONSE?
Lauren N Wood, MD; Devin N Patel, MD; Justin J Houman, MD; Juzar Jamnagerwalla, MD; Catherine Bresee, MS; Jennifer T Anger, MD, MPH; Karyn S Elber, MD
Cedars-Sinai Medical Center, Los Angeles, CA
Presented By: Lauren Wood

Poster #M5
AN OFFICE GUIDE TO OBTAINING URODYNAMICS (UDS) IN WOMEN WITH MULTIPLE SCLEROSIS (MS)
Himanshu Aggarwal, MD, MS; Catherine Howard; Gary Lemack
Presented By: Himanshu Aggarwal

Poster #M6
THE IMPACT OF PONTINE DISEASE ON LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH MULTIPLE SCLEROSIS
Steven Weissbart, MD¹; Dasha Pechersky, MD²; Anna Malychina, PhD³; Thomas Bavaria, BS⁴; Lisa Parillo, MD⁴; Lily Arya, MD¹; Michel Bilello, MD, PhD⁴; Alan Wein, MD, PhD⁴; Ariana Smith, MD⁴
¹Division of Urogynecology and Pelvic Reconstructive Surgery, University of Pennsylvania, Philadelphia, PA; ²Department of Radiology, University of Pennsylvania, Philadelphia, PA; ³Division of Urology, University of Colorado, Denver, Colorado; ⁴Division of Urology, University of Pennsylvania, Philadelphia, PA
Presented By: Steven Weissbart
Poster #M7  
HIGHER NEURAL CORRELATES AT FULL URGE IN PATIENTS WITH MULTIPLE SCLEROSIS WITH NEUROGENIC BLADDER DYSFUNCTION VIA CONCURRENT FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) AND URODYNAMIC TESTING (UDS)  
Rose Khavari, MD¹; Christof Karmonik, PhD²; Mike Shy, MD³; Jeff Anderson, PhD³; Tom Potter, MS⁴; Timothy Boone, MD, PhD²  
¹Houston Methodist Hospital; ²Houston Methodist Hospital, Houston, TX; ³Baylor College of Medicine, Houston, TX; ⁴Department of Bioengineering, University of Houston, Houston, TX  
Presented By: Rose Khavari

Poster #M8  
SERIAL BOTULINUM TOXIN INJECTIONS FOR NEUROGENIC BLADDER: 4 YEAR URODYNAMIC OUTCOMES  
Alexandra Rehfuss, MD¹; Gabriel Leinwand ²; Paul Feustel, PhD²; Elise De, MD¹  
¹Albany Medical Center, Albany, NY; ²Albany Medical College, Albany, NY  
Presented By: Alexandra Rehfuss

Poster #M9  
PREDICTORS OF LONG-TERM BLADDER MANAGEMENT IN SPINAL CORD INJURY PATIENTS - UPPER EXTREMITY FUNCTION MATTERS MOST  
Dimitar Zlatev, MD¹; Kazuko Shem, MD²; Christopher Elliott, MD, PhD¹ ²  
¹Stanford University School of Medicine, Stanford, CA; ²Santa Clara Valley Medical Center, San Jose, CA  
Presented By: Dimitar Zlatev

Poster #M26 – WITHDRAWN
Poster #NM1
TO DESIGN A SIMPLE OFFICE-BASED METHOD TO INTERPRET FREE UROFLOWMETRIES (FF) IN THE FOLLOW-UP OF WOMEN AT RISK OF DEVELOPING OUTFLOW OBSTRUCTION OVER TIME AFTER SURGICAL INTERVENTIONS.
Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD²; Philippe Zimmern, MD³
¹Hôpital Rothschild, Université Pierre et Marie Curie; ²Hôpital Rothschild, Paris, France; ³UT Southwestern Medical Center, Dallas, TX
Presented By: Françoise Valentini

Poster #NM2
MODELED ANALYSIS OF THE URETHRAL RESISTANCE TO DILATION (URD) IN WOMEN.
Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD²
¹Hôpital Rothschild, Université Pierre et Marie Curie; ²Hôpital Rothschild, Paris, France
Presented By: Françoise Valentini

Poster #NM3
EVALUATION OF DETRUSOR CONTRACTILITY AND URETHRAL OBSTRUCTION IN NON NEUROLOGICAL WOMEN
Françoise Valentini, MD, PhD¹; Brigitte Marti PT²; Pierre Nelson, PhD³; Philippe Zimmern, MD⁴; Gilberte Robain, MD, PhD¹
¹Hôpital Rothschild, Université Pierre et Marie Curie; ²Hôpital Saint Antoine, Paris, France; ³Hôpital Rothschild, Paris, France; ⁴UT Southwestern Medical Center, Dallas, TX
Presented By: Françoise Valentini

Poster #NM4
IS IT SAFE TO REDUCE WATER INTAKE IN THE OVERACTIVE BLADDER POPULATION? A REVIEW OF THE MEDICAL BENEFITS OF INCREASED HYDRATION
Lauren N. Wood, MD¹; Shellee L. Ogawa, BS²; Jennifer T. Anger, MD, MPH¹; Karyn S. Eilber, MD¹
¹Cedars-Sinai Medical Center, Los Angeles, CA; ²David Geffen School of Medicine at UCLA, Los Angeles, CA
Presented By: Lauren Wood

Poster #NM5
METABOLIC SYNDROME IN FEMALE LOWER URINARY TRACT SYMPTOMS
Hana Yoon, MD, PhD
Department of Urology, Ewha Womans University School of Medicine
Presented By: Hana Yoon

Poster #NM6
HYDRATION STATUS IS NOT ASSOCIATED WITH URINARY INCONTINENCE
Marcella Willis-Gray, MD¹; Jennifer Wu, MD, MPH²; Alayne Markland, DO³
¹Division of Urogynecology, Department of OB/GYN, University of North Carolina at Chapel Hill; ²Chapel Hill, North Carolina; ³Dept. of Medicine, Division of Gerontology, Geriatrics and Palliative Care; ⁴The University of Alabama at Birmingham
Presented By: Marcella Willis-Gray

Poster #NM7
VERY LOW REAL TIME RATE OF URINARY RETENTION AFTER INTRADETRUSOR BOTOX FOR NON-NEUROGENIC OVERACTIVE BLADDER
Kirin Syed, DO; Christopher Gomez, MD¹; Angelo Gousse, MD²
¹University of Miami Department of Urology, Miami FL; ²Bladder Health and Reconstructive Urology Institute, Miramar FL
Presented By: Kirin Syed
Poster #NM8
LOW AMPLITUDE RHYTHMIC CONTRACTIONS INFLUENCE SENSATIONS OF URGENCY IN PATIENTS WITH OVERACTIVE BLADDER SYNDROME
Andrew Colhoun, MD¹; Adam Klausner, MD¹; MaryEllen Dolat, MD¹; Eugene Bell, MD¹; Anna Nagle, PhD²; Paul Ratz, PhD³; Robert Barbee, PhD³; John Speich, PhD²
¹Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ²Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ³Departments of Biochemistry and Molecular Biology and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Department of Emergency Medicine and Physiology, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Andrew Colhoun

Poster #NM9
EFFICACY AND TOLERABILITY OF MIRABEGRON IN MULTIPLE SCLEROSIS: A PROSPECTIVE ANALYSIS
Temitope L. Rude, MD¹; Ekene Enemchukwu, MD, MS¹ ²; Carrie Lyn Sammarco, NP³; Victor Nitti, MD¹; Benjamin Brucker, MD¹ ³
¹NYU Department of Urology, New York, NY; ²Stanford University Department of Urology; Stanford, CA; ³NYU Multiple Sclerosis Care Center, New York, NY
Presented by: Temitope Rude

Poster #NM10
URETHRAL CATHETER WITH DISTRIBUTED PRESSURE SENSORS FOR IMPROVED URODYNAMICS
Mahdi Ahmadi, BME, MSME¹; Bhaskar Ravishankar, BEE,MSEE¹; Rajesh Rajamani, BME, MSME, PhD¹; Gerald Timm, BEE, MSEE,PhD²
¹Minneapolis, MN; ²University of Minnesota
Presented By: Gerald Timm

Poster #NM11
OVERACTIVE BLADDER PHARMACOTHERAPY-DOES MEDICATION CYCLING HELP?
Alexis Tran DO¹; Peter Sand MD²; Miriam Seitz MD²; Kelly Jirschele DO³; Janet Tomezsko MD²; Ying Zhou PhD⁴; Shilpa Iyer MD²; Sylvia Botros MD²
¹University of Chicago/North Shore University Health System; ²University of Chicago/NorthShore University Health System; ³University of Chicago, NorthShore University Health System; ⁴University of Chicago/NorthShore University Health System/Research Institute
Presented By: Alexis Tran

Poster #NM12
PHENOTYPING PATIENTS WITH UNDERACTIVE BLADDER BY ETIOLOGY: IS THERE PRACTICAL MERIT?
Elizabeth Timbrook Brown, MD, MPH; Joshua Cohn, MD; Melissa Kaufman, MD, PhD; Douglas Milam, MD; W. Stuart Reynolds, MD, MPH; Roger Dmochowski, MD, MMHC
Vanderbilt University Medical Center, Nashville, TN
Presented By: Elizabeth T. Brown

Poster #NM13
APPLYING SIX SIGMA AND LEAN METHODOLOGY FOR IDENTIFYING BARRIERS TO THE CARE OF PATIENTS WITH OVERACTIVE BLADDER
Daniel Liberman, MD, MSc, FRCSC¹; Elisabeth A. Ferlic, MD²; Melissa Knutson, BSc³; Steven W. Siegel, MD⁴
¹Metro Urology; ²Intermountain Urological Institute, Salt Lake City, UT; ³Medtronic Inc., Minneapolis MN; ⁴Metro Urology, Woodbury, MN
Presented by: Daniel Liberman

Poster #NM14
'TIL DEATH DO US PART: THE RELATIONSHIP BETWEEN URINARY INCONTINENCE AND MARITAL STATUS AMONG US WOMEN AND MEN
Evgeniy I. Kreydin, MD¹; Janine L. Oliver, MD¹; Michelle M. Kim, MD, PhD²; A. Lenore Ackerman, MD, PhD¹; Seth A. Cohen, MD¹; Ja-Hong Kim, MD¹; Shlomo Raz, MD¹
¹David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Massachusetts General Hospital, Boston, MA
Presented by: Evgeniy Kreydin
Poster #NM15
HIGHER URINE LEVELS OF ENVIRONMENTAL TOXINS ARE ASSOCIATED WITH INCREASED INCONTINENCE AND NOCTURIA IN MEN
Evgeniy I. Kreydin, MD¹; Michelle M. Kim MD, PhD²; Janine L. Oliver, MD¹; Seth A. Cohen, MD¹; A. Lenore Ackerman, MD PhD³; Ja-Hong Kim, MD¹; Shlomo Raz, MD¹
¹David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Massachusetts General Hospital, Boston, MA
Presented by: Evgeniy Kreydin

Poster #NM16
IN DIABETIC PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY, CONCURRENT PERIPHERAL NEUROPATHY CORRELATES TO NEITHER BLADDER SENSATION NOR TO THE DEGREE OR TYPE OF IMPAIRED CONTRACTILITY
Bradley Potts, BS; Michael Belsante, MD; Ngoc-Bich Le, MD
Duke University Medical Center, Department of Surgery, Division of Urology, Durham, NC
Presented by: Bradley Potts

Poster #NM17
PERIOPERATIVE OUTCOMES IN ADULT PATIENTS WITH SPINA BIFIDA UNDERGOING LAPAROTOMY FOR UROLOGIC DISEASE
David Moore, MD; Joshua Cohn, MD; Elizabeth Timbrook Brown, MD, MPH; W. Stuart Reynolds, MD, MPH; Douglas Milam, MD; Roger Dmochowski, MD; Melissa Kaufman, MD, PhD
Vanderbilt University Medical Center, Nashville, TN
Presented By: David Moore

Poster #NM18
PATIENT CHARACTERISTICS AND REFERRAL PATTERNS OF AN ADULT CONGENITAL NEUROGENIC BLADDER POPULATION: NEED FOR A BETTER TRANSITION
Laura Martinez, MD¹; Jennifer Lewis, APRN²; Dominic Frimberger, MD²; Gennady Slobodov, MD²
¹University of Oklahoma; ²Oklahoma City, OK
Presented By: Laura Martinez

Poster #NM19
LESS IS MORE – A NEW INTRADETRUSOR ONABOTULINUMTOXIN A INJECTION TECHNIQUE FOR NEUROGENIC AND IDIOPATHIC DETRUSOR OVERACTIVITY
Bryan Sack, MD; Michael A. Avallone, MD; Ahmad M. El-Arabi, BS; Michael Guralnick, MD, FRCSC; R. Corey O’Connor, MD
Medical College of Wisconsin, Milwaukee, WI
Presented By: Michael Guralnick

Poster #NM20
FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) DURING URODYNAMIC TESTING (UDS) IDENTIFIES BRAIN STRUCTURES INITIATING VOIDING IN PATIENTS WITH MULTIPLE SCLEROSIS
Rose Khavari, MD¹; Christof Karmonik, PhD¹; Mike Shy, MD, PhD²; Jeff Anderson, PhD¹; Tom Potter, MS³; Tim Boone, MD, PhD¹
¹Houston Methodist Hospital, Houston, TX; ²Baylor College of Medicine, Houston, TX; ³Department of Bioengineering, University of Houston, Houston, TX
Presented By: Rose Khavari

Poster #NM21
SEVERITY OF LOWER URINARY TRACT SYMPTOMS PREDICT OVERALL NEUROLOGIC QUALITY OF LIFE AMONG PATIENTS WITH MULTIPLE SCLEROSIS
Aleksandar Blubaum, BA; Stephen Blakely, MD; Nicholas Westfall, MD; Augusto Miravalle, MD; Brian Flynn, MD
Aurora, CO
Presented By: Aleksandar Blubaum
Poster #NM22
NEUROGENIC BLADDER DYSFUNCTION IN ADULTS WITH CEREBRAL PALSY: OUTCOMES FOLLOWING A CONSERVATIVE MANAGEMENT APPROACH
Daniel Liberman, MD, MSc, FRCSC¹; Robert A. Goldfarb, MD²; Andrew Pisansky, MD²; Joseph Fleck³, Patrick Hoversten³; Katherine J. Cotter, MD³; Jenna Katarski, FNP³; Sean P Elliott, MS, MD³
¹Metro Urology; ²University of Minnesota, Minneapolis, MN; ³University of Minnesota
Presented By: Daniel Liberman

Poster #NM23
THE EFFECT OF INTRA-DETRUSOR DYSPORT® (ABOBOTULINUMTOXIN-A) INJECTION ON PATIENTS WITH SPINAL CORD INJURY AND LONG TERM SUPRAPUBIC CATHETER
Sachin Malde, FRCS¹; Javed Burki, MRCS²; Ismail Omar, MRCS²; Mahreen Pakzad, FRCS³; Jeremy Ockrim, FRCS³; Julian Shah, FRCS³; Tamsin Greenwell, FRCS³; Rizwan Hamid, FRCS³
¹University College London Hospitals, London; ²Spinal Injuries Unit, Stanmore; ³University College London Hospitals
Presented By: Sachin Malde

Poster #NM24
CONTEMPORARY TREATMENT OF DETRUSOR SPHINCTER DYSSYNERGIA: A SYSTEMATIC REVIEW
Hanhan Li, MD; Alex Borchert, BS; Humphrey Atiemo, MD
Vattikuti Urology Institute, Henry Ford Health Systems, Detroit, Michigan
Presented By: Hanhan Li
Male Incontinence/Urodynamics Podium Session
Thursday, February 25, 2016
5:30 p.m. – 7:00 p.m.
Moderators: Ahmed M. El-Zawahry, MD, MSC
Arthur P. Mourtzinos, MD, MBA

Podium #9
DEVELOPMENT OF A NOVEL ARTIFICIAL URINARY SPHINCTER (AUS): THE PRECISION MEDICAL DEVICES (PMD) FLOW CONTROL DEVICE (FCD) FOR MANAGEMENT OF SPHINCTERIC DEFICIENCY USING BLUETOOTH TECHNOLOGY
Angelo Gousse, MD¹; Peter Sayet²; Christopher Gomez, MD³
¹Miramar, FL; ²Ft. Lauderdale, FL; ³University of Miami Department of Urology, Miami, FL
Presented By: Christopher Gomez

Podium #10
OBESITY DOES NOT AFFECT SUCCESS OF THE TRANSOBTURATOR MALE SLING FOR POST-PROSTATECTOMY INCONTINENCE
Katherine Brewer, MD; Miriam Greenstein, MD; Neil Grafstein, MD
Icahn School of Medicine at Mount Sinai, New York, NY
Presented By: Katherine Brewer

Podium #11
THE CORRELATION BETWEEN RETROGRADE LEAK POINT PRESSURE AND 24-HOUR PAD WEIGHT FOR MEN WITH POST PROSTATECTOMY INCONTINENCE
Eskinder Solomon, PhD; Marco Spilotros, MD; Sachin Malde, MBBS, FRCS; Mahreen Pakzad, MBBS, FRCS; Rizwan Hamid, MBBS, FRCS; Tamsin Greenwell, MD, FRCS; Jeremy Ockrim, MD, BSc (Hons), FRCS
Institute of Urology at UCLH, London, UK
Presented By: Eskinder Solomon

Podium #12
CAN FILLING PHASE URODYNAMIC PARAMETERS PREDICT THE SUCCESS OF THE BULBAR ARTIFICIAL URINARY SPHINCTER IN TREATING POST-PROSTATECTOMY INCONTINENCE?
Eskinder Solomon, MSc¹; Rajan Veeratterapillay, MB, BS, MD²; Sachin Malde, MB, BS, MSc³; Christopher Harding, MB, ChB, MD⁴; Tamsin Greenwell, MB, ChB, MD¹
¹UCLH, London, UK; ²Freeman Hospital, Newcastle Upon Tyne, UK
Presented By: Eskinder Solomon

Podium #13
TRENDS IN UTILIZATION OF SURGICAL THERAPY FOR POST-PROSTATECTOMY STRESS URINARY INCONTINENCE
Yahir Santiago-Lastra, MD; Bahaa S. Malaeb, MD
University of Michigan Department of Urology, Ann Arbor, MI
Presented By: Yahir Santiago-Lastra

Podium #14
A RANDOMIZED COMPARATIVE STUDY CORRELATING COUGH STRESS TEST WITH URODYNAMICS AND 24 HOUR PAD TEST IN THE EVALUATION OF STRESS URINARY INCONTINENCE
Joseph Henderson, IV, MD¹; Sarah Kane, MD²; Jeffrey Mangel, MD²; Elias Kikano, BS¹; Jorge Garibay, MD²; Robert Pollard, MD²; Sangeeta Mahajan, MD¹; Adonis Hijaz, MD¹
¹Division of Female Pelvic Medicine and Reconstructive Surgery, University Hospitals, Case Western Reserve University, Cleveland, OH; ²MetroHealth, Cleveland OH
Presented By: Joseph Henderson, IV
Podium #15
CORRELATION OF REAL-TIME BLADDER SENSATION DURING URODYNAMICS AND NON-INVASIVE ACCELERATED HYDRATION IN PARTICIPANTS WITH URINARY URGENCY
John Speich, PhD¹; Anna Nagle, PhD¹; David Le²; Peter Ghamarian, BS³; Andrew Colhoun, MD³; R. Wayne Barbe, PhD⁴; Paul Ratz, PhD⁵; Adam Klausner, MD⁶
¹Department of Mechanical & Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ²Department of Biomedical Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ³Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Department of Emergency Medicine, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁵Department of Biochemistry & Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁶Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; Department of Surgery/Division of Urology Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA
Presented By: Anna Nagle

Podium #16
ISOMETRIC DETRUSOR CONTRACTILE RESERVE PREDICTS IMMEDIATE RECOVERY OF SPONTANEOUS VOIDING AFTER TRANSURETHRAL RESECTION OF PROSTATE
Amy D. Dobberfuhl, MD; Craig V. Comiter, MD
Stanford University, Department of Urology
Presented By: Amy Dobberfuhl

Podium #17
BLADDER OUTLET PROCEDURES ARE AN EFFECTIVE TREATMENT OPTION FOR PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY WITHOUT BLADDER OUTLET OBSTRUCTION
Bradley Potts, BS; Michael Belsante, MD; Ngoc-Bich Le, MD
Duke University Medical Center, Department of Surgery, Division of Urology, Durham, NC
Presented By: Bradley Potts
Female Urology/Incontinence Moderated Poster Session
Thursday, February 25, 2016
5:30 p.m. – 7:00 p.m.
Moderators: Kathleen C. Kobashi, MD, FACS
Lara MacLachlan, MD

Poster #M10
THE USES AND OUTCOMES OF THE MARTIUS FAT PAD IN FEMALE UROLOGY – A 10 YEAR EXPERIENCE
Marco Spilotros, MD; Sachin Malde, MB, ChB, MSc; Mahreen Pakzad, MB, BS, MD; Rizwan Hamid, MB, ChB, MSc; Jeremy Ockrim, MB, ChB, MD; Tamsin Greenwell, MB, ChB, MD
UCLH, London, UK
Presented By: Marco Spilotros

Poster #M11
SURGICAL TRENDS IN THE CORRECTION OF FEMALE STRESS URINARY INCONTINENCE IN ACADEMIC CENTERS
Alex Cantrell, MD; Jennifer Rothschild, MD; Rafael Gonzalez, BS; Blythe Durbin-Johnson, PhD; Eric Kurzrock, MD
UC Davis, Sacramento, Ca.
Presented By: Alex Cantrell

Poster #M12
MIDURETHRAL SLING: 30 DAY MORBIDITY AND REOPERATION
Andrew Cohen, MD; Vignesh Packiam, MD; Charles Nottingham, MD, MS; Blake Alberts, MD; Sarah Faris, MD; Gregory Bales, MD
University of Chicago, Chicago, IL
Presented By: Andrew Cohen

Poster #M13
URINARY INCONTINENCE AFTER SUBURETHRAL MESH REMOVAL REQUIRING ANTI-INCONTINENCE PROCEDURES
Patkawat Ramart, MD; A. Lenore Ackerman, MD, PhD; Seth A. Cohen, MD; Ja-Hong Kim, MD; Shlomo Raz, MD
David Geffen School of Medicine at UCLA, Los Angeles, CA
Presented By: A. Lenore Ackerman

Poster #M14
IS THERE A DIFFERENCE IN OUTCOME BETWEEN EARLY VERSUS DELAYED REMOVAL OF SUBURETHRAL MID-URETHRAL SLING?
Himanshu Aggarwal, MD; Jeannine Foster; Nirmish Singla; Feras Alhalabi; Gary E. Lernack; Philippe E. Zimmern
UT Southwestern Medical Center; UT Southwestern Medical Center, Dallas, TX
Presented By: Himanshu Aggarwal

Poster #M15
INITIAL PERCEPTIONS OF ELECTIVE CESAREAN DELIVERY AMONG PRIMIPAROUS WOMEN
Colby P Souders, MD; Lauren N Wood, MD; Jennifer T Anger, MD, MPH; Kimberly D Gregory, MD; Melissa Wong, MD; Ronit Y Lyon; Alex J Hannemann; Jenna F Borok; Arlene Fink, PhD; Sally L Maliski, PhD, RN; Karyn S Eilber, MD
1Cedars-Sinai Medical Center, Los Angeles, CA; 2David Geffen School of Medicine at UCLA, Los Angeles, CA; 3Augustana College, Sioux Falls, SD; 4UCLA, Los Angeles, CA; 5UCLA School of Nursing, Los Angeles, CA
Presented By: Lauren Wood

Poster #M16
COMPARISON OF TIMES TO URETERAL EFFLUX AFTER ADMINISTRATION OF SODIUM FLUORESCEIN AND PHENAZOPYRIDINE
Seth A. Cohen, MD; Janine L. Oliver, MD; Evgeniy I. Kreydin, MD; Zaid Chaudhry, MD; My-Linh T. Nguyen, MD; Steven A. Mills, MD; A. Lenore Ackerman, MD; Ja-Hong Kim, MD; Christopher M. Tarnay, MD and Shlomo Raz, MD
1Department of Urology, UCLA, Los Angeles, CA; 2Department of Obstetrics and Gynecology, UCLA, Los Angeles, CA
Presented By: Seth Cohen
Poster #M17
LONG-TERM DURABILITY OF MIDURETHRAL SLINGS: A TIME TO EVENT ANALYSIS IN A TERTIARY REFERRAL SETTING
Kevin Gioia, MD¹; Katherine Odem-Davis, PhD²; Erika Wolff, PhD³; Alvaro Lucioni, MD¹; Una Lee, MD¹; Kathleen Kobashi, MD¹
¹Virginia Mason, Seattle, WA; ²Center for Biomedical Statistics, Seattle, WA
Presented By: Kevin Gioia

Poster #M18
ASSESSING THE ROLE OF PATIENT-REPORTED OUTCOME QUESTIONNAIRES IN THE EVALUATION OF QUALITY OF LIFE AFTER SLING SURGERY FOR FEMALE STRESS URINARY INCONTINENCE: A REVIEW OF THE LITERATURE
Kyle M. Rose, MS; Umar R. Karaman, MD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Kyle Rose

Poster #M19
PROSPECTIVE RANDOMIZED FEASIBILITY STUDY ASSESSING THE EFFECT OF CYCLIC SACRAL NEUROMODULATION ON URINARY URGE INCONTINENCE
Steven Siegel, MD Stanford University, Stanford, CA; Shaw Zhou, Pinellas Urology, Saint Petersburg, FL; Karl Kreder, University of Iowa, Iowa City, IA; Elizabeth Takacs, University of Iowa, Iowa City, IA; Rachael McNamara, Medtronic, Minneapolis, MN; Fangyu Kan, Medtronic, Minneapolis, MN
Presented by: Steven Siegel

Poster #M20
UROLOGY CHIEF RESIDENT PERCEPTION OF THEIR RESIDENCY TRAINING
Lawrence Jenkins, MD¹; Robert Marcovich, MD²; Christopher Gomez, MD³
¹MSKCC, New York, New York; ²University of Miami, Miami, FL; ³University of Miami Department of Urology, Miami, FL
Presented By: Christopher Gomez

Poster #M21
IS THERE A MINIMUM IMPORTANT DIFFERENCE IN OUTCOMES OF COMMON VALIDATED QUESTIONNAIRES AFTER SLING SURGERY?
Umar Karaman, MD; Kyle M. Rose, MS; Clifton F. Frilot II, PhD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Umar Karaman

Poster #M22
CHANGE IN URINARY STORAGE SYMPTOMS FOLLOWING TREATMENT FOR FEMALE STRESS URINARY INCONTINENCE
Zachary Panfili, MD¹; William Parker, MD²; Alexander Gomelsky, MD³; Priya Padmanabhan, MD/MPH²
¹University of Kansas Medical Center; ²University of Kansas Medical Center, Kansas City, KS; ³Louisiana State University - Shreveport, Shreveport, LA
Presented By: Zachary Panfili

Poster #M23
SYSTEMATIC REVIEW OF ADVERSE EVENTS FROM PERCUTANEOUS TIBIAL NERVE STIMULATION THERAPY COMPARED TO ANTICHOLINERGICS FOR OVERACTIVE BLADDER SYNDROME
Marisa Clifton, MD¹; Javier Pizarro-Berdichevsky, MD¹ ² ³; Howard Goldman, MD¹
¹Cleveland Clinic, Cleveland, Ohio; ²Urogynecology unit, Dr. Sotero del Rio Hospital, Santiago, Chile; ³Division de Obstetricia y Ginecologia, Pontificia Universidad Catolica de Chile
Presented By: Marisa Clifton
Poster #M24
MANAGEMENT OF PATIENTS SEEKING REVISION OF ANTI-INCONTINENCE SLING: OUTCOMES OF URETHROLYSIS VS. PARTIAL EXCISION
Alice Drain, BA¹; Ekene Enemchukwu, MD, MPH²; Nihar Shah, BA¹; Raveen Syan, MD¹; Nirit Rosenblum, MD¹; Victor Nitti, MD¹; Benjamin Brucker, MD¹
¹NYU, New York, NY; ²Stanford, Palo Alto, CA, NYU, New York, NY
Presented By: Alice Drain

Poster #M25
THERMAL PAIN THRESHOLD AND TOLERANCE MEASURED BY QUANTITATIVE SENSORY TESTING IN OVERACTIVE BLADDER (OAB): DO WOMEN WITH OAB DEMONSTRATE HYPERALGESIA?
Elizabeth Timbrook Brown, MD, MPH; Stephen Mock, MD; Joshua Cohn, MD; Melissa Kaufman, MD, PhD; Stephen Bruehl, PhD; Roger Dmochowski, MD, MMHC; W. Stuart Reynolds, MD, MPH
Vanderbilt University Medical Center, Nashville, TN
Presented By: Elizabeth Brown
**Female Urology/Incontinence Non-Moderated Poster Session**
Thursday, February 25, 2016
5:30 p.m. – 7:00 p.m.
Moderators: Kathleen C. Kobashi, MD, FACS
Lara MacLachlan, MD
*Not CME Accredited

Poster #NM25
**TRENDS IN AMBULATORY MANAGEMENT OF FEMALE URINARY INCONTINENCE IN THE UNITED STATES**
Bilal Chughtai¹; James Forde¹; Benjamin Stone¹; Richard Lee¹; Alexis Te¹; Steven Kaplan¹; Tara Bishop²
¹Dept. of Urology, Weill Cornell Medical College/New York Presbyterian Hospital, NY, USA.; ²Dept. of Healthcare Policy & Research, Weill Cornell Medical College/New York Presbyterian Hospital, NY, USA
Presented By: James Forde

Poster #NM26
**RISK FACTORS FOR MICROSCOPIC HEMATURIA IN WOMEN**
Lee Richter, MD¹; Quinn Lippmann, MD, MPH²; Karl Jallad, MD³; Joelle Lucas, MD⁴; Jennifer Yeung, MD⁵; Tanaka Dune, MD⁶; Erin Mellano, MD⁷; Steven Weissbart, MD⁸; Mihiye Mete, PhD⁹; Ja-Hong Kim, MD⁷; Robert Gutman, MD¹
¹MedStar Washington Hospital Center/Georgetown University School of Medicine, Washington, DC; ²University of San Diego, San Diego, CA; ³Clinic, Cleveland, OH; ⁴Virginia Mason, Seattle, WA; ⁵Trihealth Good Samaritan Hospital, Cincinnati, OH; ⁶Loyola University, Chicago, IL; ⁷University of California Los Angeles, Los Angeles, CA; ⁸University of Pennsylvania, Philadelphia, PA; ⁹MedStar Health Research Institute, Washington, DC
Presented By: Lee Richter

Poster #NM27
**RESIDENT KNOWLEDGE SURGICAL SKILL AND CONFIDENCE IN TRANSOBTURATOR VAGINAL TAPE (TOT) PLACEMENT; THE VALUE OF A CADAVER LAB**
WOOJIN CHONG, MD¹; Ava Leegant, MD²; Dmitry Fridman, MD, PhD²; Erika Banks, MD²; Keith Downing, MD²; Sherry Downie, PhD³
¹Division of Female Pelvic Medicine and Reconstruction Surgery, Department of Obstetrics, Gynecology and Reproductive Sciences, Mount Sinai Medical Center, NY, NY; ²Department of Obstetrics and Gynecology and Women’s Health at Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY; ³Department of Anatomy & Structural Biology, Department of Physical Medicine & Rehabilitation at Albert Einstein College of Medicine. Bronx, NY
Presented By: Woojin Chong

Poster #NM28
**INCIDENCE OF PATHOLOGY IN PATIENTS WITH DISCORDANT ULTRASOUND AND CATHETERIZED POST-VOID RESIDUALS AND ITS EFFECT ON MANAGEMENT**
Marisa Clifton, MD; Howard Goldman, MD
Cleveland Clinic, Cleveland, Ohio
Presented By: Marisa Clifton

Poster #NM29
**THE INFLUENCE OF MESH LITIGATION ON REPORTING IN THE MAUDE DATABASE**
Colby P Souders, MD¹; Jennifer T. Anger, MD, MPH¹; Lauren N. Wood, MD¹; Nima Nassiri, BS²; Krishnan Warrior, BA³; Karyn S. Eilber, MD⁴
¹Cedars-Sinai Medical Center, Los Angeles, CA; ²David Geffen School of Medicine at UCLA, Los Angeles, CA; ³Rush Medical School, Chicago, IL
Presented By: Lauren Wood
Poster #NM30
INFECTION RATE AFTER SACRAL NEUROMODULATION SURGERY: A REVIEW OF 1033 INTERSTIM PROCEDURES
Marisa Clifton, MD¹; Adrienne Quirouet, MD¹; Javier Pizarro-Berdichevsky, MD¹ ² ³; Bradley Gill, MD¹; Elodi Dielubanza, MD¹; Henry Okafor, MD¹; Anna Faris¹; Courtenay Moore, MD¹; Sandip Vasavada, MD¹; Raymond Rackley, MD¹; Howard Goldman, MD¹
¹Cleveland Clinic, Cleveland, Ohio; ²Urogynecology unit, Dr. Sotero del Rio Hospital, Santiago, Chile; ³Division de Obstetricia y Ginecologia, Pontificia Universidad Catolica de Chile
Presented By: Marisa Clifton

Poster #NM31
CASE DISTRIBUTION AND COMPLICATIONS OF MID-URETHRAL SLING SURGERY BEFORE AND AFTER HEALTH CANADA ADVISORY ON PELVIC FLOOR MESH IN A CANADIAN CENTRE
Kevin Carlson, MD, FRCSC, DABU; Trafford Crump, PhD¹; Andrea Civitarese, BSc; Richard Baverstock, MD, FRCSC
Vesia [Alberta Bladder Centre], Calgary, AB, University of Calgary, Calgary, AB
Presented By: Kevin Carlson

Poster #NM32
CAN PRE-OPERATIVE MRI PREDICT NEW ONSET URODYNAMICALLY PROVEN STRESS URINARY INCONTINENCE (USUI) POST EXCISION OF FEMALE URETHRAL DIVERTICULUM.
Sachin Malde, MB, ChB, MSc; Neha Sihra, MB, ChB; Sahar Naaseeri, MB, BS, MD; Mahreen Pakzad, MB ChB, MD; Rizwan Hamid, MB, ChB, MSc; Jeremy Ockrim, MB, ChB, MD; Tamsin Greenwell, MB, ChB, MD
UCLH, London, UK
Presented By: Sachin Malde

Poster #NM33
GENDER AND BMI-SPECIFIC ANTICHOLINERGIC PERSISTENCE AND ADHERENCE IN PATIENTS WITH OVERACTIVE BLADDER
Lannah Lua, MD; Prathamesh Parm, MS; Jessica Albanese, BS; Vani Dandolu, MD, MPH, MBA
University of Nevada School of Medicine, Las Vegas, Nevada
Presented By: Juzar Jamnagerwalla

Poster #NM34
ANALYSIS OF SEDIMENT FORMATION ON LONG TERM INDWELLING FREE-FLOATING INTRAVESICAL BALLOONS FOR THE TREATMENT OF SUI FROM TWO MULTICENTER RANDOMIZED CONTROLLED CLINICAL STUDIES.
Karny Jacoby, MD¹; Jean Jaques Wyndaele, MD²; Stefan De Wachter, MD²; Eric Rovner, MD³; Roger Dmochowski, MD⁴; Susan Kalota, MD⁵; Jeffrey Snyder, MD⁶; Giovanni Tommaselli, MD⁷; Gommert van Koeveringe, MD⁸
¹University Of Washington School Of Medicine; ²University of Antwerp, Atwerp, Belgium; ³Medical University of South Carolina, Charleston, SC; ⁴Vanderbilt University, Nashville, TN; ⁵Urological Associates of Southern Arizona, Tucson, AZ; ⁶Genitourinary Surgical Consultants Denver, CO 80220; ⁷Università Degli Studi Di Napoli "Federico II", Naples, Italy; ⁸Maastricht University Medical Centre, Maastricht, Netherlands
Presented By: Jeffrey Snyder

Poster #NM35 – WITHDRAWN

Poster #NM36
PREDICTORS FOR URINARY RETENTION AFTER INTRAVESICAL ONABOTULINUMTOXINA INJECTION FOR OVERACTIVE BLADDER
Chintan Patel, MD; Arthur Mourtzinos, MD; Lara MacLachlan, MD
Lahey Hospital and Medical Center, Burlington, MA
Presented By: Chintan Patel

Poster #NM37
PREDICTORS OF VAGINAL MESH EXPOSURE FOLLOWING MID-URETHRAL SLING PLACEMENT: A CASE-CONTROL STUDY
Brian Linder, MD; Sherif El-Nashar, MD; Daniel Carranza, MD; Emanuel Trabuco, MD
Mayo Clinic, Rochester, MN
Presented By: Brian Linder
Poster #NM38
DOES TROCAR PUNCTURE OF THE BLADDER DURING MIDURETHRAL SLING IMPACT POSTOPERATIVE URINARY STORAGE AND VOIDING SYMPTOMS?
J. Margaret Kent, MD; Clifton F. Frilot, II, PhD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Jennifer Kent

Poster #NM39
ARE THE WOMEN WITH PERSISTENT STRESS URINARY INCONTINENCE AFTER MIDURETHRAL SLING SURGERY DIFFERENT FROM THOSE WITH RECURRENT SUI?
Jessie Liang, MD; Clifton F. Frilot, II, PhD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Jessie Liang

Poster #NM40
LESSONS LEARNED FROM THE MANUFACTURER AND USER FACILITY DEVICE EXPERIENCE (MAUDE) DATABASE ON TRANSVAGINAL MESH AND SLING REPORTS
Annie Abraham; Kristina Tzartzeva; Alana L. Christie; Philippe E. Zimmern MD
UT Southwestern Medical Center, Dallas, Texas
Presented By: Annie Abraham

Poster #NM41
DOES GOH CLASSIFICATION PREDICT OUTCOME OF VESICO-VAGINAL FISTULA REPAIR IN THE DEVELOPED WORLD?
Alice Beardmore-Gray, MB, ChB; Mahreen Pakzad, MB, BS, MD; Rizwan Hamid, MB, BS, MD; Jeremy Ockrim, MB, ChB, MD; Tamsin Greenwell, MB, ChB, MD
UCLH, London, UK
Presented By: Alice Beardmore-Gray

Poster #NM42
USE OF ILIOTIBIAL BAND (FASCIA LATA) AS A SALVAGE CONTINENCE REPAIR AFTER MESH REMOVAL – AT LEAST 6 MONTHS FOLLOW UP
Victoria C.S. Scott, MD¹; Seth A. Cohen, MD¹; Scott A. Greenberg, MD¹; Evgenyi I. Kreydin, MD¹; Janine L. Oliver, MD¹; A. Lenore Ackerman, MD, PhD¹; Zaid Chaudhry, MD²; My-Linh T. Nguyen, MD²; Ja-Hong Kim, MD¹; Shlomo Raz, MD¹
¹Department of Urology, UCLA, Los Angeles, CA; ²Department of Obstetrics and Gynecology, UCLA, Los Angeles, CA
Presented By: Victoria C.S. Scott

Poster #NM43
CLINICAL OUTCOMES IN WOMEN AFTER REVISION OF MIDURETHRAL SLING: DOES TIME TO INTERVENTION REALLY MATTER?
Ekene Enemchukwu MD, MPH¹; Nihar Shah BA²; Alice Drain BA²; Raveen Syan MD²; Nirit Rosenblum MD²; Victor Nitti MD²; Benjamin Brucker MD²
¹Stanford, CA; ²New York, NY
Presented By: Ekene Enemchukwu

Poster #NM44
TEACHING MID-URETHRAL SLING SURGERY TO RESIDENTS: IS IT SLOWING US DOWN?
Ali Reza Sharif Afshar, MD¹; Lauren Wood, MD¹; Catherine Bresee, MS¹; Colby Perkins, MD¹; Bruno Gross, MS²; Eugene Shkolyar, MD²; Jennifer Anger, MD²; Karyn Eilber, MD²
¹Cedars Sinai Medical Center, Los Angeles, CA; ²Texas A&M Health Science Center College of Medicine, Bryan, TX;
³UCLA, Los Angeles, CA
Presented By: Ali Reza Sharif Afshar

Poster #NM45
TRANSCRIPTIONAL REGULATION OF CORTICOTROPIN RELEASING FACTOR GENE EXPRESSION
Lizath Aguiniga; David Klumpp, PhD
Northwestern University, Chicago, IL
Presented By: Lizath Aguiniga
Poster #NM46
TRENDS AND RE-INTERVENTIONS IN THE SURGICAL MANAGEMENT OF STRESS URINARY INCONTINENCE AMONG FEMALE MEDICARE BENEFICIARIES
James Forde¹; Bilal Chughtai¹; Jessica Buck¹; Jennifer Anger²; Tirsiit Asfaw³; Jialin Mao⁴; Richard Lee¹; Alexis Te¹; Steven Kaplan¹; Art Sedrakyan⁴
¹Dept. of Urology, Weill Cornell Medical College/New York Presbyterian Hospital, NY.; ²Division of Urology, Ceders-Sinai Medical Center, Los Angeles, CA; ³Department of Obstetrics and Gynecology, Weill Cornell Medical College/New York Presbyterian Hospital, NY.; ⁴Department of Public Health, Weill Cornell Medical College/New York Presbyterian Hospital, NY.
Presented By: James Forde

Poster #NM47
TRANSVAGINAL MESH IN THE MEDIA FOLLOWING THE 2011 U.S. FOOD AND DRUG ADMINISTRATION PUBLIC HEALTH NOTIFICATION UPDATE
Kevin Koo, MD, MPH, MPhil; E. Ann Gormley, MD
Dartmouth-Hitchcock Medical Center, Lebanon, NH
Presented By: Kevin Koo

Poster #NM48
FACTORS INFLUENCING THE RATE OF LOST TO FOLLOW-UP AFTER SUB-URETHRAL SYNTHETIC SLING REMOVAL
Jeannine Foster; Alana L. Christie; Philippe E. Zimmern, MD
UT Southwestern Medical Center, Dallas, Texas
Presented By: Jeannine Foster

Poster #NM49
DE NOVO URGENCY IN A MINORITY POPULATION FOLLOWING INCONTINENCE OR PELVIC ORGAN PROLAPSE SURGERY.
Cristina Palmer, DO; Traci Beck, MD; Sarah Psutka, MD; Andrew Drago, MS; Patricia Vidal, MD; Courtney Hollowell, MD
Cook County Health and Hospitals System, Chicago, IL
Presented By: Cristina Palmer

Poster #NM50
CHARACTERISTICS AND TREATMENTS USED IN WOMEN WITH PERSISTENT GENITAL AROUSAL DISORDER
Brian Odom, BS¹; Michael Ehlert, MD²; Kim Killinger, MSN³; Kenneth Peters, MD⁴
¹Oakland University William Beaumont School of Medicine, Rochester, MI; ²Metro Urology, Minneapolis, MN; ³Beaumont Health, Royal Oak, MI; ⁴Oakland University William Beaumont School of Medicine, Rochester, MI.; Beaumont Health, Royal Oak, MI
Presented By: Brian Odom

Poster #NM51
LONGITUDINAL ASSESSMENT OF TVTO IN THE TREATMENT OF STRESS URINARY INCONTINENCE
Andrew Colhoun, MD¹; David Rapp, MD²
¹Virginia Commonwealth University; ²Virginia Urology Center for Incontinence and Pelvic Floor Reconstruction
Presented By: Andrew Colhoun

Poster #NM52
ASSESSMENT OF COMMUNICATION TECHNOLOGY ACCESS DURING GLOBAL HEALTH MISSION
David Rapp, MD¹; Andrew Colhoun, MD²; Timothy Bradford, MD²
¹Virginia Urology Center for Incontinence and Reconstruction; ²Richmond, VA
Presented By: David Rapp
Abstract Summaries

*Video Session I
Friday, February 26, 2016
7:00 a.m. – 8:00 a.m.
*Not CME Accredited

Video #1
VAGINAL REPAIR OF NON-RADIATED POST-HYSTERECTOMY VESICO-VAGINAL FISTULA
Philippe E. Zimmern MD, Dominic Lee MD, Benjamin Dillon MD and Gary Lemack MD
UT Southwestern Medical Center, Dallas, TX
Presented By: Philippe Zimmern

Video #2
URETHROVAGINAL FISTULA CLOSURE
Marisa Clifton MD and Howard Goldman MD
Cleveland Clinic, Cleveland, Ohio
Presented By: Marisa Clifton

Video #3
BLANDY URETHROPLASTY: REPAIR OF MID-URETHRAL STRicture WITH A VAGINAL FLAP
Temitope L. Rude MD, Dianne Glass MD and Benjamin Brucker MD
NYU Department of Urology, NY, NY
Presented By: Temitope Rude

Video #4
VAGINAL RECONSTRUCTION WITH FASCIOCUTANEous SINGAPORE FLAP
Marisa Clifton MD, Raffi Gurunluoglu MD, Javier Pizarro-Berdichevsky MD, Todd Baker MD and Sandip Vasavada MD
Cleveland Clinic, Cleveland, Ohio
Presented By: Marisa Clifton

Video #5
Sacrospinosus Fixation Of Neovaginal Prolapse
Ricardo Palmerola MD, Haris Ahmed MD, Manish Vira MD and Farzeen Firoozi MD
Hofstra North Shore- LIJ School of Medicine, New Hyde Park, NY
Presented By: Ricardo Palmerola

Video #6
PREVENTION, RECOGNITION, AND MANAGEMENT OF COMPLICATIONS ASSOCIATED WITH SACROSPINOSUS COLPOPEXY
Jill Danford MD¹,², Audra Hill MD³, Carl Zimmerman MD⁴ and Mark Walters MD³
¹Vanderbilt University Medical Center; ²Nashville, TN; ³Cleveland Clinic, Cleveland, OH;
⁴Vanderbilt University Medical Center, Nashville, TN
Presented By: Jill Danford
Pelvic Organ Prolapse/Reconstruction Podium Session
Friday, February 26, 2016
8:30 a.m. – 10:00 a.m.
Moderators:  Maude Carmel, MD, FRCSC
            Howard B. Goldman, MD

Podium #18
DOES THE DEGREE OF CYSTOCELE PREDICT DE-NOVO STRESS URINARY INCONTINENCE AFTER PROLAPSE REPAIR? FURTHER ANALYSIS OF THE CARE TRIAL
Michael Davenport, MD¹; Eric Sokol, MD¹; Christopher Elliott, MD, PhD²
¹Stanford University School of Medicine Stanford, CA; ²Santa Clara Valley Medical Center San Jose, CA
Presented By: Michael Davenport

Podium #19
HOW USEFUL ARE URODYNAMICS IN THE PREOPERATIVE ASSESSMENT OF WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE?
Dianne Glass, MD, PhD¹; Aqsa Khan, MD²; Lauren Seo, BA³; Benjamin Brucker, MD¹; Victor Nitti, MD¹
¹Division of Female Pelvic Medicine and Reconstructive Surgery, New York University Langone Medical Center, New York, NY; ²Department of Urology, Mayo Clinic, Scottsdale, Arizona; ³New York University School of Medicine, New York, NY
Presented By: Dianne Glass

Podium #20
THE IMPACT OF SURGEON EXPERIENCE ON THE COMPLICATIONS OF TRANSVAGINAL PROLAPSE MESH
Erin Kelly, MD¹; Jennifer Winick-Ng, MSc²; Blayne Welk, MD, MSc¹
¹Western University, London, ON; ²ICES Western
Presented By: Erin Kelly

Podium #21
THE TRUTH BEHIND TRANsvAGINAL MESH LITIGATION: DEVICES, TIMELINES, AND PROVIDER CHARACTERISTICS
Colby P Souders, MD¹; Karyn S Eilber, MD¹; Lynn McClelland, JD²; Lauren N Wood, MD¹; Alex R Souders, JD²; Vicki Steiner, JD²; Jennifer T Anger, MD, MPH¹
¹Cedars-Sinai Medical Center, Los Angeles, CA; ²UCLA School of Law, Los Angeles, CA
Presented By: Lauren Wood

Podium #22
IMPROVEMENT OF POSTOPERATIVE PAIN FOLLOWING VAGINAL RECONSTRUCTIVE SURGERY USING LIPOSOMAL BUPIVACAINE
Mohamed Keheila, MD; Christian Chan, BS; Salim Cheriyen, MD; Jim Shen, MD; Kevin Kim, BS; Andrea Staack, MD, PhD
Department of Urology, Loma Linda University School of Medicine, Loma Linda, CA
Presented By: Mohamed Keheila

Podium #23
IATROGENIC URETERAL INJURY FROM HYSTERECTOMY IN THE ERA OF MINIMALLY INVASIVE SURGERY: A NATIONAL ANALYSIS OF TRENDS, RISK FACTORS, AND OUTCOMES
Vignesh T. Packiam, MD; Joseph J. Pariser, MD; Andrew J. Cohen, MD; Charles U. Nottingham, MD; Sarah F. Faris, MD; Gregory T Bales MD
University of Chicago Medicine, Chicago, IL
Presented By: Vignesh Packiam

Podium #24
MID-TERM OUTCOMES FOLLOWING SUB-URETHRAL SYNTHETIC SLING REMOVAL IN WOMEN
Jeannine Foster; Nirmish Singla, MD; Himanshu Aggarwal, MD; Feras Alhalabi, MD; Gary E. Lemack, MD; Philippe E. Zimmerm, MD
UT Southwestern Medical Center, Dallas, TX
Presented By: Jeannine Foster
Podium #25

FEemale Genitourinary Fistulas in the Developed World: An Analysis of Disease Characteristics, Treatments and Complications Using a National Database
Wilson Sui; Marissa C. Velez, MD; Ifeanyi Onyeji; Justin T. Matulay, MD; Maxwell B. James; Doreen E. Chung, MD
Department of Urology, Columbia University, New York, NY
Presented By: Marissa Velez

Podium #26

Comprehensive Characterization of Innervation Zones of the Pelvic Floor and Anal Sphincter with High-Density Intrarectal and Intravaginal EMG Probes
Yun Peng, MSc¹; Rose Khavari, MD²; Timothy Boone, PhD, MD²; Yingchun Zhang, PhD¹
¹Department of Biomedical Engineering, University of Houston, Houston, TX; ²Department of Urology, Houston Methodist Hospital, Houston, TX
Presented By: Yingchun Zhang
Poster #M27
URODYNAMIC FINDINGS IN MEN WITH AND WITHOUT DIABETES: DO DIFFERENCES EXIST?
Marissa C. Velez, MD; Ifeanyi Onyeji; Justin T. Matulay, MD; Maxwell James; Matthew Rutman, MD; Doreen E. Chung, MD
Department of Urology, Columbia University, New York, NY
Presented By: Ifeanyi Onyeji

Poster #M28
"REAL-WORLD" EFFECTIVENESS OF PERCUTANEOUS TIBIAL NERVE STIMULATION
Yahir Santiago-Lastra, MD; Ann Oldendorf, MD; John T Stoffel, MD; J. Quentin Clemens, MD; Anne P Cameron, MD
University of Michigan Department of Urology, Ann Arbor, MI
Presented By: Yahir Santiago-Lastra

Poster #M29
OUTCOMES OF SACRAL NEUROMODULATION IN PATIENTS WITH PRIOR SURGICAL TREATMENT OF STRESS URINARY INCONTINENCE AND PELVIC ORGAN PROLAPSE
Verity Ramirez, MS¹; Jamie Bartley, DO¹ ²; Kim Killinger, MSN³; Judith Boura, MS³; Priyanka Gupta, MD²
¹Oakland University William Beaumont School of Medicine, Rochester, MI; ²Beaumont Health System, Royal Oak, MI
Presented By: Jamie Bartley

Poster #M30
RATE AND RISK FACTORS FOR SACRAL NERVE STIMULATOR LEAD BREAKAGE AT THE TIME OF LEAD REVISION OR EXPLANTATION
Javier Pizarro-Berdichevsky, MD¹; Marisa M. Clifton, MD²; Elodi J. Dielubanza, MD²; Bradley C. Gill, MD²; Henry T. Okafor, MD²; Anna E. Faris, MD²; Raymond R. Rackley, MD²; Courtenay K. Moore, MD²; Sandip P. Vasavada, MD²; Howard B. Goldman, MD²; Adrienne Quirouet, MD²
¹Cleveland Clinic, Cleveland, OH / Urogynecology Unit, Hospital Dr. Sotero del Rio, Santiago, Chile / Division Obstetricia y Ginecologia Pontificia Universidad Catolica de Chile, Santiago, Chile; ²Cleveland Clinic, Cleveland, OH
Presented By: Javier Pizarro-Berdichevsky

Poster #M31
ASSESSMENT OF BATTERY LIFE OF THE 2ND GENERATION IMPLANTABLE PULSE GENERATOR IN A PRACTICE OF HIGH VOLUME IMPLANTERS
Daniel Liberman, MD, MSc, FRCSC¹; Marta Johnson-Mitchell, DO²; Paulina Olszewska, DO²; Steven W. Siegel, MD²
¹Metro Urology; ²Metro Urology, Woodbury, MN
Presented By: Daniel Liberman

Poster #M32
CHRONIC NEUROMODULATION AS A TREATMENT FOR PERSISTENT GENITAL AROUSAL DISORDER
Brian Odom, BS¹; Michael Ehlert, MD²; Kim Killinger, MSN³; Kenneth Peters, MD⁴
¹Oakland University William Beaumont School of Medicine, Rochester, MI; ²Metro Urology, Minneapolis, MN; ³Beaumont Health, Royal Oak, MI; ⁴Oakland University William Beaumont School of Medicine, Rochester, MI; Beaumont Health, Royal Oak, MI
Presented By: Brian Odom

Poster #M33
ARTIFICIAL URINARY SPHINCTER MECHANICAL FAILURES: IS IT BETTER TO REPLACE THE ENTIRE DEVICE OR JUST THE MALFUNCTIONING COMPONENT?
Brian Linder, MD; Boyd Viers, MD; Matthew Ziegelmann, MD; Marcelino Rivera, MD; Laureano Rangel, MS; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Brian Linder
Poster #M34
LONG-TERM SUBJECTIVE AND FUNCTIONAL OUTCOMES OF PRIMARY AND SECONDARY ARTIFICIAL URINARY SPHINCTER IMPLANTATIONS AMONG MEN WITH STRESS URINARY INCONTINENCE
Boyd Viers, MD; Marcelino Rivera, MD; Brian Linder, MD; Laureano Rangel, MS; Matthew Ziegelmann, MD; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Boyd Viers

Poster #M35
OVERACTIVE BLADDER AND URGENCY INCONTINENCE IN MEN UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT
Christopher Gomez, MD
University of Miami Department of Urology, Miami, FL
Presented By: Christopher Gomez

Poster #M36
DOUBLE-LAYER VESICOURETHRAL ANASTOMOSIS ASSOCIATED WITH IMPROVED EARLY CONTINENCE AFTER ROBOTIC RADICAL PROSTATECTOMY
Juan Guzman, MD¹; Ricardo Sanchez-Ortiz, MD²
¹University of Puerto Rico School of Medicine, San Juan, PR; ²Robotic Urology & Oncology Institute and University of Puerto Rico School of Medicine, San Juan, PR
Presented By: Juan Guzman

Poster #M37
PREDICTORS OF URINARY RETENTION IN PATIENTS RECEIVING INTRADETRUSOR BOTULINUM TOXIN INJECTIONS
Daniel Hoffman, MD; Ekene Enemchukwu, MD; Sidhartha Kalra, MD; Victor Nitti, MD
New York University
Presented By: Daniel Hoffman

Poster #M38
NON-INFRINGEMENT CHARACTERIZATION OF REAL-TIME BLADDER SENSATION IN NORMAL VOLUNTEERS USING ACCELERATED HYDRATION AND A NOVEL SENSATION METER
Adam Klausner, MD¹; Peter Ghamarian, BS²; David Le, BS³; Anna Nagle, PhD³; Andrew Colhoun, MD³; Paul Ratz, PhD⁴; Robert Barbee, PhD⁵; John Speich, PhD⁶
¹Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine and Department of Surgery/Division of Urology, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA; ²Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ³Department of Mechanical & Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ⁴Department of Biochemistry & Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁵Department of Emergency Medicine, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Adam Klausner

Poster #M39
SENSATION DURING FILLING CYSTOMETRY CORRELATES WITH DETRUSOR WALL TENSION IN PATIENTS WITH OVERACTIVE BLADDER
Andrew Colhoun, MD¹; John Speich, PhD⁵; MaryEllen Dolat, MD¹; Eugene Bell, MD¹; Anna Nagle, PhD³; Paul Ratz, PhD³; Robert Barbee, PhD⁵; Adam Klausner, MD¹
¹Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, Virginia; ²Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, Virginia; ³Departments of Biochemistry and Molecular Biology and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Departments of Biochemistry and Molecular Biology and Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA
Presented By: Andrew Colhoun

Poster #M40
AUDIOVISUAL STIMULUS DURING URODYNAMICS TO PROVOKE DETRUSOR OVERACTIVITY
Jonathan Shaw, MB, BCh, BSc; Nicole Negbenebor, BS; Kyle Wohlrab, MD; Christina Raker, ScD; Sung Vivian, MD, MPH
Brown University, Providence, RI
Presented By: Jonathan Shaw
Poster #M41
CHARACTERIZING THE URODYNAMIC FINDINGS OF ADULT CEREBRAL PALSY PATIENTS
Mya Levy, MD¹; Katherine Cotter, MD¹; Daniel Liberman, MD¹; Robert Goldfarb, MD¹; Jenna Katorski, NP²; Sean Elliott, MD, MS¹
¹University of Minnesota, Minneapolis; ²Gillette Lifetime Specialty Healthcare, St. Paul, MN
Presented By: Mya Levy
Poster #NM53
DOES UPPER MEDIAL PLACEMENT OF A SACRAL LEAD AFFECT NEUROMODULATION OUTCOMES? A RADIOLOGIC STUDY
Natalie Gaines, MD¹; Priyanka Gupta, MD¹; Jonathan C. Hu²; Kim A. Killinger, MSN¹; Judith A. Boura¹; Jamie Bartley DO³ ²; Jason Gilleran MD³ ²; Kenneth M. Peters MD³ ²
¹Beaumont Health, Royal Oak, MI; ²Oakland University William Beaumont School of Medicine; ³Beaumont Health System
Presented By: Natalie Gaines

Poster #NM54
SACRAL NERVE STIMULATION IN MALES: HOW DOES IT COMPARE TO FEMALES?
Bradley Gill, MD¹; Javier Pizarro-Berdichevsky, MD¹ ² ³; Anna Faris, BS¹; Marisa Clifton, MD¹; Henry Okafor, MD¹; Elodi Dielubanza, MD¹; Adrienne Quirouet, MD¹; Courtenay Moore, MD¹; Howard Goldman, MD¹; Sandip Vasavada, MD¹; Raymond Rackley, MD¹
¹Cleveland Clinic, Cleveland, Ohio; ²Urogynecology Unit, Dr. Sotero del Rio Hospital, Santiago, Chile; ³Division de Obstetricia y Ginecologia, Pontificia Universidad Catolica de Chile
Presented By: Bradley Gill

Poster #NM55
EFFICACY OF PERCUTANEOUS TIBIAL NERVE STIMULATION FOR REFRACTORY IDIOPATHIC OVERACTIVE BLADDER AT A MILITARY INSTITUTION
Doug Cho, MD; Joseph Lukan, BSN; Pansy Uberoi, MD; Timothy Phillips, MD; Forrest Jellison, MD
Presented By: Doug Cho

Poster #NM56
INCIDENCE OF NEUROMODULATION DEVICE EXPLANT FOR MAGNETIC RESONANCE IMAGING IN A SINGLE, HIGH VOLUME INSTITUTION
Jamie Bartley, DO; Priyanka Gupta, MD; Kim A. Killinger, MSN; Jason Gilleran, MD; Natalie Gaines, MD; Cheryl Wolfert; Judith A. Boura, MS; Kenneth M. Peters, MD
¹Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI
Presented By: Jamie Bartley

Poster #NM57
DOES THE NUMBER AND TYPE OF PREVIOUS PELVIC PROCEDURES AFFECT OUTCOME OF SACRAL NEUROMODULATION IN THE TREATMENT OF IN WOMEN WITH IDIOPATHIC DETRUSOR OVERACTIVITY?
Eskinder Solomon PhD; Osman Kose, MD; Sachin Malde, MBBS, FRCS; Marco Spilotros, MD; Julie Jenks, RGN; Rizwan Hamid, MD, FRC; Mahreen Pakzad, MBBS, FRCS; Tamsin Greenwell, MD, FRCS; Jeremy Ockrim, MD, BSc (Hons), FRCS
Institute of Urology at UCLH, London, UK
Presented By: Eskinder Solomon

Poster #NM58
OVERACTIVE BLADDER PATHWAY AND MEDICAL HISTORY IN A LARGE PROSPECTIVE TRIAL OF SACRAL NEUROMODULATION THERAPY FOR OAB PATIENTS
Craig Comiter, MD¹; Jeffrey Mangel, MD²; Erin T. Bird, MD³; Tomas L. Griebling, MD⁴; Daniel Culkin, MD⁵; Suzette E. Sutherland, MD⁶; Shenita Bolstrom, MS⁷; Fangyu Kan, MS⁷; Steven Siegel, MD⁸
¹Stanford University, Stanford, CA; ²MetroHealth Medical Center, Cleveland, OH; ³Scott and White Healthcare, Temple, TX; ⁴University of Kansas, Kansas City, KS; ⁵University of Oklahoma, OKC, OK; ⁶University of Washington, Seattle, WA; ⁷Medtronic, Minneapolis, MN; ⁸Metro Urology, Woodbury, MN
Presented By: Craig Comiter
Poster #NM59
REMOVAL OF THE INTERSTIM® SACRAL NEUROMODULATION (SNM) PERMANENT TINED LEAD FROM THE S3 FORAMEN: A STANDARDIZED SURGICAL TECHNIQUE
Matthew Sterling, MD; Siobhan Hartigan, MD; Alan Wein, MD, PhD; Ariana Smith, MD
Hospital of the University of Pennsylvania, Philadelphia, PA
Presented By: Matthew Sterling

Poster #NM60
TIBIAL NEUROMODULATION: NOVEL CHRONIC IMPLANTABLE DEVICE ACHIEVES URINARY CONTINENCE IN INITIAL CASES
Thomas Kessler, MD¹; S. Knuepfer, MD¹; Stefan DeWachter, MD²; Marko Kozomara, MD¹; Karl-Dietrich Sievert, MD, PhD³
¹Balgrist University Clinic, Zurich, Switzerland; ²University Clinic, Antwerp; ³SALK/PMU
Presented By: Karl-Dietrich Sievert

Poster #NM61
INTRA-OPERATIVE NEURO-DIAGNOSTICS DURING STAGED INTERSTIM IMPLANTS: A 10 YEAR EXPERIENCE
Charles Butrick, MD, FPMRS
The Urogynecology Center
Presented By: Charles Butrick

Poster #NM62
LONG-TERM FOLLOW UP RESULTS OF TRANSOBTURATOR MALE SLINGS FOR POST-PROSTATECTOMY INCONTINENCE
Katherine Brewer, MD; Miriam Greenstein, MD; Neil Grafstein, MD
Icahn School of Medicine at Mount Sinai, New York, NY
Presented By: Katherine Brewer

Poster #NM63
LONG-TERM OUTCOMES FOLLOWING ARTIFICIAL URINARY SPHINCTER PLACEMENT: AN ANALYSIS OF 1082 CASES AT MAYO CLINIC
Brian Linder, MD; Marcelino Rivera, MD; Matthew Ziegelmann, MD; Daniel Elliott, MD
¹Mayo Clinic, Rochester, MN
Presented By: Brian Linder

Poster #NM64
TEMPORAL PATTERN OF ARTIFICIAL URINARY SPHINCTER (AUS) CUFF EROSIONS INDICATING DIFFERING ETIOLOGIES OF AUS CUFF EROSIONS
Deepak Agarwal, MD; Brian Linder, MD; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Deepak Agarwal

Poster #NM65
MALE SLING VERSUS ARTIFICIAL URINARY SPHINCTER AS PRIMARY MANAGEMENT OF POST-PROSTATECTOMY INCONTINENCE: A COST-EFFECTIVENESS ANALYSIS
Joshua Cohn, MD; Niels Johnsen, MD; Elizabeth Timbrook Brown, MD, MPH; Melissa Kaufman, MD; Douglas Milam, MD; David Penson, MD, MPH; Roger Dmochowski, MD; W. Stuart Reynolds, MD, MPH
Vanderbilt University Medical Center, Nashville, TN
Presented By: Joshua Cohn

Poster #NM66
RECOVERY OF URINARY FUNCTION AFTER ROBOTIC-ASSISTED LAPAROSCOPIC PROSTATECTOMY VERSUS RADICAL PERINEAL PROSTATECTOMY FOR EARLY STAGE PROSTATE CANCER
Priyanka Gupta, MD; Natalie Gaines, MD; Michael Ehlerd MD; John Lavin, MD; Larry T. Sirls, MD
¹Beaumont Health, Royal Oak, MI; ²Metro Urology, Minneapolis, MN; ³Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI
Presented By: Priyanka Gupta
Poster #NM67
A CRITICAL APPRAISAL OF THE HISTORY OF MALE STRESS URINARY INCONTINENCE TREATMENT: PAST, CURRENT AND FUTURE
Kirin Syed, DO; Christopher Gomez, MD¹; Peter Seyet ²; Angelo Gousse, MD³
¹University of Miami Department of Urology Miami, FL; ²Precision Medical Devices Inc, Fort Lauderdale FL; ³Bladder Health and Reconstructive Urology Institute, Miramar, FL
Presented By: Kirin Syed

Poster #NM68
DOES INTRA-OPERATIVE RETROGRADE LEAK POINT PRESSURE PREDICT SUCCESS OF ARGUS MALE PERINEAL SLING
Yu Qing Huang, MDCM Candidate; Samer Shamout, Master in Urology; Lysanne Campeau, MDCM, PhD, FRCSC
McGill University, Montreal, Quebec
Presented By: Yu Qing Huang

Poster #NM69
EFFECTS OF SMOKING STATUS ON DEVICE SURVIVAL AMONG INDIVIDUALS UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT
Christina Godwin, MD; Brian Linder, MD; Andrew Blackburne, MD; Marcelino Rivera, MD; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Christina Godwin

Poster #NM70
PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: RESULTS FROM A NATIONALLY VALIDATED MULTI CENTER PROSPECTIVE COHORT
Allen Simms¹; Daniel Davenport, PhD¹; Sudhir Isharwal, MD²; Sara Johnson¹; Stephen Strup, MD¹; Shubham Gupta, MD¹
¹University of Kentucky, Lexington KY; ²University of Nebraska, Omaha Nebraska
Presented By: Allen Simms

Poster #NM71
IS PERIURETHRAL INJECTION OF MACROPLASTIQUE® A VIABLE OPTION FOR PATIENTS WITH POST-PROSTATECTOMY URINARY INCONTINENCE?
Jessica Delong, MD¹; Robert Strehlow, MD²; Matthew Ingham, MD¹; Jeremy Tonkin, MD¹; Kurt McCammon, MD¹
¹Norfolk, VA; ²EVMS
Presented By: Robert Strehlow

Poster #NM72
PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: EFFECT OF LENGTH OF STAY ON OUTCOMES
Allen Simms¹; Daniel Davenport, PhD¹; Sudhir Isharwal, MD²; Sara Johnson¹; Stephen Strup, MD¹; Shubham Gupta, MD¹
¹University of Kentucky, Lexington KY; ²University of Nebraska, Omaha Nebraska
Presented By: Allen Simms

Poster #NM73
PREDICTORS OF POOR PATIENT SATISFACTION FOLLOWING PRIMARY AUS PLACEMENT AMONG MEN WITH AND WITHOUT A PRIOR HISTORY OF RADIATION
Marcelino Rivera, MD; Boyd Viers, MD; Linder Brain, MD; Laureano Rangel, MS; Ziegelmann Matthew, MD; Daniel Elliott, MD
Rochester, MN
Presented By: Marcelino Rivera

Poster #NM74
UNDERSTANDING DETRUSOR CONTRACTION DURATION: WHAT ARE NORMAL PARAMETERS? AND WHAT ARE DETERMINING FACTORS?
Marissa C. Velez, MD¹; Justin T. Matulay, MD¹; Ifeanyi Onyeji¹; Kimberly Cooper, MD¹; Arindam RoyChoudhury, PhD²; Doreen E. Chung, MD¹
¹Department of Urology, Columbia University, New York, NY; ²Mailmain School of Public Health, Columbia University, New York, NY
Presented By: Marissa Velez
Poster #NM75
URODYNAMIC PARAMETERS FOR UNDERACTIVE BLADDER: ARE THERE DIFFERENCES FOR NEUROGENIC AND NON-NEUROGENIC ETIOLOGIES?
Elizabeth Timbrook Brown, MD, MPH; Joshua Cohn, MD; Melissa Kaufman, MD, PhD; Douglas Milam, MD; W. Stuart Reynolds, MD, MPH; Roger Dmochowski, MD, MMHC
Vanderbilt University Medical Center, Nashville, TN
Presented By: Elizabeth Brown

Poster #NM76
DOES HISTORY OF HYSTERECTOMY ALTER BLADDER FUNCTION?
Rena Malik, MD¹; Gregory T. Bales, MD¹; Doreen E. Chung, MD²
¹Chicago, IL; ²New York, NY
Presented By: Rena Malik

Poster #NM77
THE USE OF LAVENDER AROMATHERAPY TO DECREASE WOMEN’S ANXIETY AND PAIN DURING MULTI-CHANNEL URODYNAMICS
Amira Quevedo, MD¹; Carrie Jung, MD¹; Niquelle Brown, MS²; Christina Dancz, MD²; Begum Ozel, MD²
¹LAC+USC Medical Center; ²Keck School of Medicine
Presented By: Amira Quevedo

Poster #NM78
URODYNAMIC CHARACTERISTICS AND THEIR IMPACT ON MANAGEMENT OF NON-NEUROGENIC VOIDING DYSFUNCTION IN YOUNG PATIENTS
Baruch Popovtzer, MD; Michael Vainrib, MD
Meir Medical Center affiliated to Tel Aviv University, Kfar-Saba, Israel
Presented By: Baruch Popovtzer

Poster #NM79
PRE-SLING URODYNAMIC PARAMETERS ASSOCIATED WITH FUTURE NEED FOR SLING REVISION.
Iryna Crescenze, MD¹; Nitya Abraham, MD²; Anna Zampini, MD¹; Raymond Rackley, MD¹; Sandip Vasavada, MD¹; Courtenay Moore, MD¹
¹Cleveland Clinic, Cleveland, OH; ²Montefiore Medical Center, Bronx, NY
Presented By: Iryna Makovey
Podium #27
PATIENTS WITH A VARIETY OF UROLOGICAL SYMPTOMS IMPROVE AFTER TINED LEAD IMPLANT AT THE PUDENDAL NERVE
Kenneth M. Peters, MD; Kim A. Killinger, MSN; Priyanka Gupta, MD; Natalie Gaines, MD; Jamie Bartley, DO; Cheryl Wolfert, BSN; Judith A. Boura, MS; Jason Gilleran, MD
Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI
Presented By: Kenneth Peters

Podium #28
LOWER RISK OF LEAD REVISION BASED ON “OPTIMAL” LEAD PLACEMENT DURING STAGE 1 SACRAL NEUROMODULATION
Javier Pizarro-Berdichevsky MD¹; Adrienne Quirouet, MD²; Marisa M. Clifton, MD²; Bradley C. Gill, MD²; Elodi J. Dielubanza, MD²; Henry T. Okafor MD²; Anna E. Faris, MD²; Courtenay K. Moore, MD²; Raymond R. Rackley MD²; Sandip P. Vasavada, MD²; Howard B. Goldman, MD²
¹Cleveland Clinic, Cleveland, OH / Urogynecology Unit, Hospital Dr. Sotero del Rio, Santiago, Chile / Division Obstetricia y Ginecologia Pontificia Universidad Catolica de Chile, Santiago, Chile; ²Cleveland Clinic, Cleveland, OH
Presented By: Javier Pizarro-Berdichevsky

Podium #29
ARE BASELINE CHARACTERISTICS PREDICTIVE OF SACRAL NEUROMODULATION TEST STIMULATION RESPONSE IN A LARGE MULTICENTER TRIAL?
Steven Siegel¹; Jason Bennett, MD²; Jeffrey Mangel, MD²; Craig Comiter, MD⁴; Erin Bird, MD⁵; Tomas L. Griebling, MD⁶; Daniel Culkin, MD⁷; Suzette E. Sutherland, MD⁸; Karen Noblett, MD⁹; Kellie Berg, MS¹⁰; Fangyu Kan, MS¹⁰
¹Metro Urology; ²Female Pelvic Medicine, Grand Rapids, MI; ³MetroHealth Medical Center, Cleveland, OH; ⁴Stanford University, Stanford, CA; ⁵Scott and White Healthcare, Temple, TX; ⁶University of Kansas, Kansas City, KS; ⁷University of Oklahoma, OKC, OK; ⁸University of Washington, Seattle, WA; ⁹University of California, Riverside, CA; ¹⁰Medtronic, Minneapolis, MN
Presented By: Steven Siegel

Podium #30
AGE-RELATED VARIABILITY IN SACRAL NEUROMODULATION IMPLANTATION AND REVISIONS
Bradley Gill, MD¹; Javier Pizarro-Berdichevsky, MD¹ ² ³; Adrienne Quirouet, MD¹; Marisa Clifton MD¹; Elodi Dielubanza, MD¹; Henry Okafor, MD¹; Howard Goldman, MD¹; Courtenay Moore, MD¹; Raymond Rackley, MD¹; Sandip Vasavada, MD¹; Anna Faris, BA
¹Cleveland Clinic, Cleveland, Ohio; ²Urogynecology unit, Dr. Sotero del Rio Hospital, Santiago, Chile; ³Division de Obstetricia y Ginecologia, Pontificia Universidad Catolica de Chile
Presented By: Anna Faris

Podium #31
DOES SEX MATTER? A MATCHED PAIRS ANALYSIS OF NEUROMODULATION OUTCOMES IN WOMEN AND MEN
Priyanka Gupta, MD¹; Jason Gilleran, MD²; Kim A. Killinger, MSN¹; Jamie Bartley, DO²; Natalie Gaines, MD¹; Cheryl Wolfert, BSN¹; Judith A. Boura, MS²; Kenneth M. Peters, MD²
¹Beaumont Health, Royal Oak, MI; ²Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI
Presented By: Priyanka Gupta
Podium #32
A PILOT STUDY OF CARDIAC ELECTROPHYSIOLOGY CATHETERS TO MAP AND PACE BLADDER ELECTRICAL ACTIVITY
Robert Kelley, DO, MBA¹; Michael Vardy, MD²; Grant Simons, MD²; Henry Chen, MD³; Charles Ascher-Walsh, MD¹; Michael Brodman, MD¹
¹Icahn School of Medicine at Mount Sinai, New York, NY; ²Englewood Hospital, Englewood, NJ; ³Cardiologist Private Practice, Emeryville, CA
Presented By: Robert Kelley
IC/Pelvic/Geriatrics/BPH Moderated Poster Session
Friday, February 26, 2016
4:00 p.m. – 5:00 p.m.
Moderators: W. Stuart Reynolds, MD, MPH
Larissa V. Rodriguez, MD

Poster #M42
COMPARISON OF SURGICAL OUTCOMES IN BENIGN PROSTATIC HYPERPLASIA MANAGEMENT USING THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM
Devin Haddad, BS¹; Louis Krane, MD²; Gopal Badlani, MD¹; Majid Mirzazadeh, MD¹
¹Wake Forest University School of Medicine, Winston-Salem, NC; ²National Cancer Institute, Bethesda, MD
Presented By: Majid Mirzazadeh

Poster #M43
LASER TREATMENT OF BPH: A COMPARISON OF HOLMIUM ENUCLEATION AND DIODE VAPORIZATION OF THE PROSTATE
Alex Uhr, BS; Amar Raval, MD; Michael Amirian, MD; Whitney Smith, MD; Akhil Das, MD
Thomas Jefferson University Hospital, Philadelphia, PA
Presented By: Whitney Smith

Poster #M44
THE HUMANISTIC IMPACT OF OVERACTIVE BLADDER SYMPTOMS ON AMBULATORY OLDER PATIENTS
Daniel B. Ng, PharmD, MBA¹; Natalia Flores, PhD²; Kavita Nair, PhD³; Rita Kristy, MS¹; Jonathan Chapnick, BA²; Katherine Gooch, PhD³; Carol Schermer, MD, MPH, FACS¹
¹Astellas Pharma Global Development, Inc., Northbrook, IL; ²Kantar Health, New York, NY; ³University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences, Aurora, CO
Presented By: Daniel Ng

Poster #M45
NATIONAL ASSESSMENT OF ADVANCING AGE ON PERIOPERATIVE MORBIDITY AND LENGTH OF STAY ASSOCIATED WITH MINIMALLY INVASIVE SACROCOLUMPOPEXY
Zaid Chaudhry, MD¹; Seth A. Cohen, MD²; Christopher Tarnay, MD¹
¹Department of Obstetrics and Gynecology, David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Department of Urology, David Geffen School of Medicine at UCLA, Los Angeles, CA
Presented By: Zaid Chaudhry

Poster #M46
OVERACTIVE BLADDER SYMPTOMS' SEVERITY AND IMPACT ON A QUALITY OF LIFE AMONG SENIOR COMMUNITY HOUSING RESIDENTS
Michael Vainrib, MD
Meir Medical Center, Kfar-Saba, Israel
Presented By: Michael Vainrib

Poster #M47
WHICH BLADDER INSTILLATIONS ARE MORE EFFECTIVE? DMSO VS. BUPIVACAINE/HEPARIN/TRIAMCINALONE: A RETROSPECTIVE REVIEW
Shilpa Iyer, MD, MPH¹; Elizabeth Lotsof BA²; Ying Zhou, PhD²; Alexis Tran, DO²; Carolyn Botros, DO²; Peter Sand, MD²; Roger Goldberg, MD²; Janet Tomezsko, MD²; Adam Gafni-Kane, MD²; Sylvia Botros, MD²
¹The University of Chicago/ North Shore University Health System; ²North Shore University Health System
Presented By: Shilpa Iyer

Poster #M48
RECURRENT URINARY TRACT INFECTIONS DUE TO BACTERIAL PERSISTENCE OR REINFECTION IN WOMEN: DOES THIS FACTOR IMPACT UPPER TRACT IMAGING FINDINGS?
Yuefeng Wu; Lauren L. Rego; Alana L. Christie; Rebecca S. Lavelle; Philippe E. Zimmern
UT Southwestern Medical Center, Dallas, Texas
Presented By: Yuefeng Wu
**Poster #M49**

**BILATERAL SACRAL NEUROMODULATION IN INTERSTITIAL CYSTITIS PATIENTS**
Melissa Dawson, DO, MS; Nima Shah, MD; Rebecca Rinko, DO; Danielle Atchley, CNP; Kristene Whitmore, MD

1Drexel University College of Medicine, Philadelphia, PA; 2Pelvic and Sexual Health Institute, Philadelphia, PA

Presented By: Melissa Dawson

**Poster #M50**

**CO-MORBIDITY WITH CHRONIC PAIN CONDITIONS IN WOMEN WITH OAB IS ASSOCIATED WITH GREATER URINARY SYMPTOM BURDEN**

W. Stuart Reynolds, MD, MPH; Xuechao Zhang, MS; Roger Dmochowski, MD; Stephen Bruehl, PhD

Vanderbilt University Medical Center, Nashville, TN

Presented By: W. Stuart Reynolds
Poster #NM80
COMPARISON BETWEEN LOWER URINARY TRACT SYMPTOMS AND URODYNAMIC OUTCOMES IN OCTOGENARIAN WOMEN
Michael Vainrib, MD
Meir Medical Center, Kfar-Saba, Israel
Presented By: Michael Vainrib

Poster #NM81
CYCLOPHOSPHAMIDE-INDUCED OVERACTIVE BLADDER VIA DOWNREGULATION OF RELAXATION FACTORS THROUGH DETRUSOR PDGFRΑ+ CELLS
Haeyeong Lee, PhD; Byoung Koh, BS; Robert Corrigan, BS; Lauren Peri, BS; Toby Chai, MD; Kenton Sanders, PhD; Sang Koh, MD, PhD
Presented By: Haeyeong Lee

Poster #NM82
PREOPERATIVE ANTIBIOTICS PRIOR TO BLADDER BIOPSY: ARE THEY NECESSARY?
Christopher I. Sayegh, BS; Marissa C. Velez, MD; Justin T. Matulay, MD; Kimberly L. Cooper, MD
Department of Urology, Columbia University, New York, New York
Presented By: Christopher Sayegh

Poster #NM83
PELVIC FLOOR MUSCLE INJECTIONS FOR HYPERTONICITY IN WOMEN
Natalie Gaines, MD¹; Esther Han, DO²; Priyanka Gupta, MD³; Morgan Farrah⁴; Kim A. Killinger, MSN³; Judith A. Boura³ ⁵; Jamie Bartley, DO³ ⁵; Jason Gilleran, MD³ ⁵; Larry T. Sirls, MD³ ⁵; Kenneth M. Peters, MD³ ⁵
¹Beaumont Health, Royal Oak, MI; ²Detroit Medical Center, Detroit, MI; ³Beaumont Health System, Royal Oak, MI; ⁴Oakland University, Rochester, MI; ⁵Oakland University William Beaumont School of Medicine, Rochester, MI
Presented By: Natalie Gaines

Poster #NM84
CRITERIA FOR URINARY TRACT INFECTIONS IN PATIENTS WITH INTERSTITIAL CYSTITIS
Rebecca Rinko, DO¹; Melissa Dawson, DO, MS¹; Nima Shah, MD¹; Megan Danielle Atchley, CRNP²; Kristene Whitmore, MD²
¹Drexel University College of Medicine, Philadelphia, PA; ²Pelvic and Sexual Health Institute, Philadelphia PA
Presented By: Rebecca Rinko

Poster #NM85
THE SIGNIFICANCE OF HEMATURIA IN AN IC FLARE
Uzma Chaudhry, MD¹; Krystal Hunter, MBA¹; Chioma Unebu-Ogbonna¹; Karolynn Echols, MD¹
¹Cooper University Hospital, Camden NJ; ²Cooper University Hospital Camden, NJ; ³Rowan Medical School, Camden NJ; ⁴Cooper University Hospital, Camden NJ Department of Female Pelvic Medicine and Reconstructive Surgery
Presented By: Uzma Chaudhry

Poster #NM86
A TERTIARY CARE CENTER EXPERIENCE WITH UROTHELIAL CARCINOMA PRESENTING AS BLADDER PAIN SYNDROME
Eliza Lamin, MD; Lisa Parrillo, MD; Nicolas Seranio; Philip Hanno, MD; Ariana Smith, MD
Philadelphia
Presented By: Eliza Lamin
Poster #NM87
RESIDUAL PELVIC PAIN/DYSpareunia MANAGEMENT AFTER SYNTHETIC VAGINAL MESH AND/OR SLING REMOVAL
Annie Abraham; Kelly Scott, MD; Philippe E. Zimmern, MD
UT Southwestern Medical Center, Dallas, TX
Presented By: Annie Abraham

Poster #NM88 – WITHDRAWN

Poster #NM89
URODYNAMIC FINDINGS AND OPERATIVE MANAGEMENT OF SEVERE COMPLICATIONS OF GREENLIGHT LASER VAPORIZATION OF THE PROSTATE
David Moore, MD; Joshua Cohn, MD; Elizabeth Timbrook Brown, MD, MPH; W. Stuart Reynolds, MD, MPH; Douglas Milam, MD; Roger Dmochowski, MD; Melissa Kaufman, MD, PhD
Vanderbilt University Medical Center, Nashville, TN
Presented By: David Moore

Poster #NM90
APPLICATION OF THE D INDEX: NOMOGRAMS ALLOWING EVALUATION OF BLADDER OUTLET OBSTRUCTION (BOO) IN MEN FROM FREE UROFLOWS (FF)
Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD¹; Philippe Zimmern, MD²
¹Hôpital Rothschild, Université Pierre et Marie Curie; ²UT Southwestern Medical Center, Dallas, TX
Presented By: Françoise Valentini

Poster #NM91
UROLOGICAL COMPLICAITONS IN SPINAL CORD INJURY PATIENTS (SCI): A 40-TO-50 YEAR FOLLOW-UP STUDY
Yunliang Gao, MD¹; Teresa Danforth, MD²; David Ginsberg, MD¹
¹Department of Urology, Keck School of Medicine, University of Southern California, Los Angeles, CA; ²Department of Urology, University at Buffalo School of Medicine and Biomedical Sciences, Buffalo, NY
Presented By: Yunliang Gao

Poster #NM92
DIABETIC BLADDER DYSFUNCTION AND DETRUSOR PDGFRΑ+ CELLS
Haeyeong Lee, PhD¹; Byoung Koh, BS¹; Robert Corrigan, BS¹; Lauren Peri, BS¹; Toby Chai, MD²; Kenton Sanders, PhD¹; Sang Koh, MD PhD¹
¹UNR.Reno, NV; ²Yale School of Medicine
Presented By: Haeyeong Lee

Poster #NM93 - WITHDRAWN
Abstract Summaries

*Video Session II
Saturday, February 27, 2016
7:00 a.m. – 8:00 a.m.
*Not CME Accredited

Video #7  TRANSVAGINAL SLING EXCISION: TIPS AND TRICKS
Marisa Clifton MD and Howard Goldman MD
Cleveland Clinic, Cleveland, Ohio
Presented By: Marisa Clifton

Video #8  PLACEMENT OF AUTOLOGOUS SUBURETHRAL SLING HARVESTED FROM VAGINAL EPITHELIUM
Salim Cheriyan MD¹, Kevin Kim BA², Josianne Bailey BS², Mohamed Keheila MD¹ and Andrea Staack MD, pHD³
¹Loma Linda University Medical Center - Department of Urology; ²Loma Linda University Medical Center; ³Loma Linda University Medical Center - Department of Urology
Presented By: Salim Cheriyan

Video #9  PRIMARY BLADDER NECK OBSTRUCTION
Laura Gephart MBA MD¹, Jeff Fusterer BA², Wilma Larsen MD³, Preston Milburn MD³ and Erin Bird MD³
¹BaylorScott & White, Temple, TX; ²PixelBee, Riverside, California; ³BaylorScott&White, Temple, Texas
Presented By: Laura Gephart

Video #10  MINIMALLY INVASIVE TECHNIQUE FOR FASCIA LATA HARVEST
Temitope L. Rude MD, Dianne Glass MD and Benjamin M. Brucker MD
NYU Department of Urology, NY, NY
Presented By: Temitope Rude

Video #11  TRANSLABIAL ULTRASOUND EVALUATION OF PELVIC FLOOR STRUCTURES AND MESH IN THE UROLOGY OFFICE AND INTRAOPERATIVE SETTING
Jim Shen MD, Kevin Kim BA, Salim Cheriyan MD, Josianne Bailey BS, Mohamed Keheila MD, Glenn Rouse MD and Andrea Staack MD
Presented By: Jim Shen

Video #12  HAND-ASSISTED LAPAROSCOPIC RIGHT COLON MOBILIZATION FOR CONTINENT CUTANEOUS ILEAL CECOCYSTOPLASTY
Daniel Liberman MD, MSc, FRCSC¹, Travis J. Pagliara MD² and Sean P. Elliott MS, MD²
¹Metro Urology; ²University of Minnesota, Minneapolis, MN
Presented By: Daniel Liberman
Female Urology/ Incontinence Podium Session  
Saturday, February 27, 2016  
8:00 a.m. – 9:30 a.m.  
Moderators: E. Ann Gormley, MD  
Philippe E. Zimmern, MD

Podium #33
SLING PROCEDURES FOR THE TREATMENT OF STRESS URINARY INCONTINENCE (SUI): COMPARISON OF NATIONAL PRACTICE PATTERNS BETWEEN UROLOGISTS AND GYNECOLOGISTS
Marissa C. Velez, MD; Maxwell B. James; Justin T. Matulay, MD; Wilson Sui; Gina M. Badalato, MD; Doreen E. Chung, MD  
Department of Urology, Columbia University, New York, New York  
Presented By: Maxwell B. James

Podium #34
QUALITY OF STUDIES REPORTING SAFETY AND EFFICACY OF SYNTHETIC MID-URETHRAL SLINGS (SMUS)
Mubashir Billah, BA¹; Salma Ahsanuddin, BBA, BS¹; Blaivas Jerry, MD²  
¹Brooklyn, NY; ²New York, NY  
Presented By: Mubashir Billah

Podium #35
STRESS URINARY INCONTINENCE AFTER ROBOTIC ASSISTED PROLAPSE REPAIR
Priyanka Gupta, MD¹; Natalie Gaines, MD¹; Jamie Bartley, DO¹; Michael Ehlert, MD²; Jason Gilleran, MD¹; Melissa Fischer, MD¹; Kim A. Killinger, MSN¹; Larry T. Sirls, MD¹  
¹Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI; ²Metro Urology, Minneapolis, MN  
Presented By: Priyanka Gupta

Podium #36
OUTCOME MEASURES MOST COMMONLY USED IN THE LITERATURE TO ASSESS STRESS INCONTINENCE SURGERY IN WOMEN OVER THE PAST 5 YEARS: …AND THE WINNER IS!
Carlos Finsterbusch, MD; Maude Carmel, MD; Philippe E. Zimmern, MD  
UT Southwestern Medical Center, Dallas, Texas  
Presented By: Carlos Finsterbusch

Podium #37
RADIOGRAPHIC MISDIAGNOSES AFTER PERIURETHRAL BULKING AGENTS
Natalie Gaines, MD¹; Priyanka Gupta, MD¹; Iyad S. Khourdají, MD¹; Keval Parikh ²; Kim A. Killinger, MSN¹; Michael Ehlert, MD²; Larry T. Sirls, MD¹,²  
¹Beaumont Health, Royal Oak, MI; ²Oakland University William Beaumont School of Medicine, Rochester, MI; ³Metro Urology, Minneapolis, MN  
Presented By: Natalie Gaines

Podium #38
ANALYSIS OF COMPLICATIONS OF PELVIC MESH REVISION SURGERY USING THE CLAVIEN–DINDO CLASSIFICATION SYSTEM
Andrew Rabley, BS; Tracy Tipton, MD; Drew Freilich, MD; Goran Rac, BS; Leah Chiles, MD; Ross Rames, MD; Lindsey Cox, MD; Eric Rovner, MD  
Medical University of South Carolina, Charleston, SC  
Presented By: Andrew Rabley

Podium #39
SYSTEMIC (NON-UROLOGIC) SYMPTOMS IN PATIENTS WITH OVERACTIVE BLADDER
H Henry Lai, MD; Joel Vetter; Sanjay Jain, MD, PhD; Gerald Andriole, MD  
St. Louis, MO  
Presented By: Henry Lai
Podium #40
DURABLE IMPROVEMENTS IN URINARY INCONTINENCE AND POSITIVE TREATMENT RESPONSE IN PATIENTS WITH OVERACTIVE BLADDER SYNDROME FOLLOWING LONG-TERM ONABOTULINUMTOXINA TREATMENT: FINAL RESULTS OF 3.5-YEAR STUDY
David Sussman¹; Peter Sand²; Sidney Radomski³; Christopher Chapple⁴; Dirk De Ridder⁵; Karl-Dietrich Sievert⁶; Brenda Jenkins⁷; Andrew Magyar⁸; Victor Nitti⁹
¹Rowan University School of Osteopathic Medicine, Stratford, NJ; ²NorthShore University HealthSystem, University of Chicago, Skokie, IL; ³University of Toronto, Toronto, Canada; ⁴Royal Hallamshire Hospital, Sheffield, UK; ⁵University Hospitals KU Leuven, Leuven, Belgium; ⁶Paracelsus Medical University, Salzburg, Austria; ⁷Allergan, Inc., Irvine, CA; ⁸Allergan, Inc., Bridgewater, NJ; ⁹New York University, New York, NY
Presented By: David Sussman

Podium #41
DEFINING THE RATE AND PREDICTORS OF URINARY TRACT INFECTION AFTER BOTOX INJECTION IN PATIENTS RECEIVING PROPHYLACTIC ANTIBIOTICS
Juzar Jamnagerwalla, MD; Justin Houman, MD; Devin Patel, MD; Lauren Wood, MD; Jennifer T. Anger, MD; Karyn S. Eilber, MD
Cedars-Sinai Medical Center, Los Angeles, CA
Presented By: Juzar Jamnagerwalla
Podium #42
LACK OF EFFICACY OF A SOMATIC-TO-AUTONOMIC INTRADURAL NERVE ANASTOMOSIS (XIAO PROCEDURE) FOR BLADDER CONTROL IN CHILDREN WITH MYELOMENINGOCELE AND LIPOMYELOMENINGOCELE: RESULTS OF A PROSPECTIVE RANDOMIZED DOUBLE BLINDED STUDY
Gerald Tuite, MD¹; Ethan Polsky, MD²; Yves Homsy, MD²; Margaret Reilly, PT²; Carolyn Carey, MD²; Parrish Winesett, MD²; Luis Rodriguez, MD²; Bruce Storrs, MD²; Sarah Gaskill, MD³; Lisa Tetreault, RN³; Denise Martinez, MPH³; Ernest Amankwah, PhD³
¹Johns Hopkins/All Children's Hospital; ²Saint Petersburg, Florida; ³Tampa, Florida
Presented By: Gerald Tuite

Podium #43
POSITIVE OUTCOMES AFTER FIRST TREATMENT WITH ONABOTULINUMTOXINA PERSIST LONG-TERM WITH REPEAT TREATMENTS IN PATIENTS WITH NEUROGENIC DETRUSOR OVERACTIVITY
Roger Dmochowski, MD, MMHC¹; Philip Aliotta, MD²; Bertil Blok, MD³; David Castro-Diaz, MD³; Pierre Denys, MD⁴; Karen Ethans, MD⁵; Manher Joshi, MD⁶; Andrew Magyar, PhD⁶; Michael Kennelly, MD⁷
¹Vanderbilt University Medical Center, Nashville, TN; ²Western New York Urology Associates, LLC, Cheektowaga, NY; ³Erasmus Medical Center, Rotterdam, The Netherlands; ⁴Hospital Universitario de Canarias, Santa Cruz de Tenerife, Spain; ⁵Hôpital Raymond Poincaré, Garches, France; ⁶University of Manitoba, Winnipeg, MB, Canada; ⁷Allergan, Inc., Irvine, CA; ⁸Allergan, Inc., Bridgewater, NJ; ⁹Carolina Rehabilitation, Charlotte, NC
Presented By: Roger Dmochowski

Podium #44
SACRAL NEUROMODULATION THERAPY IN PATIENTS WITH NEUROLOGIC LOWER URINARY TRACT DYSFUNCTION – SHOULD IT REMAIN AN OFF LABEL INDICATION? ANALYSIS OF 80 CONSECUTIVE CASES
Henry Okafor, MD¹; Adrienne Quirouet, MD¹; Javier Pizarro-Berdichevsky, MD² ³; Bradley Gill, MD¹; Marisa Clifton, MD¹; Elodi Dielubanza, MD¹; Anna Faris¹; Howard Goldman, MD¹; Sandip Vasavada, MD¹; Raymond Rackley, MD¹; Courtenay Moore, MD²
¹Cleveland Clinic, Cleveland, Ohio; ²Cleveland Clinic, Cleveland OH; ³Urogynecology unit, Dr. Sotero del Rio Hospital, Santiago, Chile; ⁴Division de Obstetricia y Ginecologia, Pontificia Universidad Catolica de Chile
Presented By: Henry Okafor

Podium #45
UROLOGIC RECONSTRUCTION, URINARY TRACT INFECTIONS, AND RENAL DYSFUNCTION IN A CONTEMPORARY COHORT OF TRAUMATIC SPINAL CORD INJURED PATIENTS
Blayne Welk, MD, MSc¹; Kuan Liu, MSc²; Jennifer Winick-Ng, MSc²; Salimah Shariff, PhD²
¹Western University, London, Ontario; ²ICES Western
Presented By: Blayne Welk

Podium #46
CHARACTERIZING LUT DYSFUNCTION IN MEN WITH MS: RESULTS FROM A PROSPECTIVELY MAINTAINED DATABASE FROM 2000-2015
Catherine Harris, MD¹; Alana Christie, BS¹; Catherine Howard, BS²; Gary E. Lemack MD¹
¹The University of Texas Southwestern Medical Center, Dallas, TX; ²Texas Tech University Health Sciences Center, Lubbock, TX
Presented By: Catherine Harris
Podium #47
EFFICACY AND SAFETY OF MIRABEGRON ADD-ON TREATMENT TO SOLIFENACIN IN INCONTINENT OVERACTIVE BLADDER (OAB) PATIENTS WITH AN INADEQUATE RESPONSE TO INITIAL 4-WEEK SOLIFENACIN TREATMENT
Marcus J. Drake, DM, MA, FRCS¹; Ahmet Adil Esen, MD²; Stavros Athanasiou, MD³; Claire Herholdt, BSc⁴; Mathilde Kaper, MA⁵; Tahir Saleem, MD⁶; Moses Huang, MBChB, FFPM, MBA⁷; Emad Siddiqui, MD, MRCS⁸; Scott MacDiarmid, MD, FRCPSc⁹
¹Bristol Urological Institute, Bristol, UK; ²Dokuz Eylül University, Izmir, Turkey; ³General Hospital of Athens "Alexandra", Athens, Greece; ⁴Astellas Pharma Europe Ltd, Chertsey, Surrey, UK; ⁵Astellas Pharma Global Development, Leiden, Netherlands; ⁶Alliance Urology Specialists, Greensboro, NC
Presented By: Scott MacDiarmid

Podium #48
TEMPORAL SUMMATION AS AN OBJECTIVE MARKER FOR OVERACTIVE BLADDER IN WOMEN
Elizabeth Timbrook Brown, MD, MPH; Stephen Mock, MD; Joshua Cohn, MD; Melissa Kaufman, MD, PhD; Stephen Bruehl, PhD; Roger Dmochowski, MD, MMHC; W. Stuart Reynolds, MD, MPH
Vanderbilt University Medical Center, Nashville, TN
Presented By: Elizabeth Brown

Podium #49
FALSE NEGATIVES OF STANDARD URINE CULTURES MAY DELAY PATIENT TREATMENT
AUTHORS
Tanaka Dune, MD¹; Evann Hilt, MS²; Travis Price, MS²; Linda Brubaker, MD, MS¹; Cynthia Brincat, MD, PhD¹; Alan Wolfe, PhD²; Paul Schreckenberger, PhD³; Elizabeth Mueller, MD, MS¹
¹Female Pelvic Medicine and Reconstructive Surgery, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ²Microbiology and Immunology, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ³Microbiology and Pathology, Loyola University Chicago Stritch School of Medicine, Maywood, IL
Presented By: Tanaka Dune

Podium #50
SPECIFIC URINARY TRACT INFECTION SYMPTOMS IN WOMEN RELATE TO URINARY ORGANISMS
Tanaka Dune, MD¹; Evann Hilt, MS²; Travis Price, MS²; Cynthia Brincat, MD, PhD¹; Colleen Fitzgerald, MD, MS¹; Linda Brubaker, MD, MS¹; Alan Wolfe, PhD²; Paul Schreckenberger, PhD³; Elizabeth Mueller, MD, MS¹
¹Female Pelvic Medicine and Reconstructive Surgery, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ²Microbiology and Immunology, Loyola University Chicago Stritch School of Medicine, Maywood, IL; ³Microbiology and Pathology, Loyola University Chicago Stritch School of Medicine, Maywood, IL
Presented By: Tanaka Dune
Pelvic Organ Prolapse/Reconstruction Moderated Poster Session
Saturday, February 27, 2016
8:00 a.m. – 9:30 a.m.
Moderators: Elise J. De, MD
Courtenay K. Moore, MD

Poster #M51
PREDICTIVE VALUE OF POST-URETHROPLASTY VOIDING CYSTOURETHROGRAM
Esther Han, DO; Daniel Stein, MD¹; Ibraheem Malkawi, MD²; Evan Begun³; Richard Santucci, MD²
¹George Washington University Washington DC; ²Detroit Medical Center Detroit, MI; ³Michigan State University Lansing, MI
Presented By: Esther Han

Poster #M52
FEMALE URETHRAL DIVERTICULA: HOW DO MRI FINDINGS CORRELATE WITH PRE-OPERATIVE SIGNS AND
SYMPTOMS OR POST-OPERATIVE OUTCOMES?
Nima Baradaran, MD; Leah Chiles, MD; Drew Freilich, MD; Ross Rames, MD; Eric Rovner, MD
Medical University of South Carolina, Charleston, SC
Presented By: Nima Baradaran

Poster #M53
THE MEDIUM TERM OUTCOMES OF STOMA FORMATION FOR PATIENTS UNDERGOING CONDUIT DIVERSION
FOR FUNCTIONAL AETIOLOGY: 5-YEAR FOLLOW-UP
Osman Kose MD; Eskinder Solomon, PhD; Sachin Malde, MBBS, FRCS; Marco Spilotros, MD; Mahreen Pakzad, MBBS,
FRCS; Rizwan Hamid, MBBS, FRCS; Julian Shah, MD, FRCS; Tamsin Greenwell, MD FRCS; Jeremy Ockrim, MD ,BSc
(Hons) FRCS
Institute of Urology at UCLH, London, UK
Presented By: Osman Kose

Poster #M54
ROBOTIC REPAIR OF VESICOVAGINAL FISTULAS USING FIBRIN SEALANT
Graham Machen, MD; Leah Chiles, MD; Kristofer Wagner, MD; Erin Bird, MD
Baylor Scott & White/The Texas A&M College of Medicine, Temple, Texas
Presented By: Graham Machen

Poster #M55
DURABILITY OF REVISION SURGERY FOR STENOSIS OF CATHETERIZABLE CHANNELS IN ADULTS
Daniel Liberman, MD, MSc, FRCSC¹; Travis J. Pagliara, MD²; Jeremy B. Myer,s MD³; John Stoffel MD⁴; Sean P. Elliott, MS, MD⁵
¹Metro Urology; ²University of Minnesota, Minneapolis, MN; ³University of Utah, Salt Lake City, UT; ⁴University of
Michigan, Ann Arbor, MI; ⁵University of Minnesota
Presented By: Daniel Liberman

Poster #M56
FACTORS ASSOCIATED WITH PESSARY DISCONTINUATION: A RETROSPECTIVE REVIEW
Yoko Takashima, MD; Christina Dancz, MD, MPH; Begum Ozel, MD
Keck School of Medicine, Los Angeles, CA
Presented By: Yoko Takashima

Poster #M57
COMPARISON OF ONE-YEAR OUTCOMES FOR SACROSPINOUS HYSTEROPEXY AUGMENTED WITH
POLYPROPYLENE MESH AND HUMAN DERMAL GRAFT: AN AMBIDIRECTIONAL COHORT STUDY
Miriam Seitz, MD;² Alexis Tran, DO²; Shilpa Iyer, MD, MPH²; Kelly Jirschele, DO²; Ying Zhou, PhD³; Tomeszko Janet,
MD⁴; Gafni-Kane Adam, MD²; Botros Sylvia, MD, MSci³; Sand Peter, MD³
¹Kalihi-Palama Health Clinic; ²NorthShore University HealthSystems/University of Chicago, Skokie, IL; ³Illinois
Urogynecology Ltd, Naperville, IL; ⁴Research Institute, NorthShore University HealthSystems
Presented By: Shilpa Iyer
Poster #M58
TRANSVAGINAL MESH INCREASES THE RISK OF BLEEDING AND ORGAN SURGICAL SITE INFECTION IN VAGINAL PELVIC RECONSTRUCTION SURGERY: RESULTS FROM A MULTI-INSTITUTIONAL PROSPECTIVELY MAINTAINED DATASET
Devin Haddad, BS¹; Louis Krane, MD²; Gopal Badlani, MD¹; Majid Mirzazadeh, MD¹
¹Wake Forest University School of Medicine, Winston-Salem, NC; ²National Cancer Institute, Bethesda, MD
Presented By: Majid Mirzazadeh

Poster #M59
SHARED DECISION MAKING FOR INCONTINENCE SURGERY AT THE TIME OF PELVIC ORGAN PROLAPSE REPAIR: EFFECT OF THE 2011 FDA SAFETY COMMUNICATION
Erin Ohmann, MD, MS; Aqsa Khan, MD; Benjamin Brucker, MD; Scott Smilen, MD; Nirit Rosenblum, MD; Victor Nitti, MD
New York University Langone Medical Center, New York, NY
Presented By: Erin Ohmann

Poster #M60
SEXUAL FUNCTION IN PATIENTS UNDERGOING POSTERIOR COMPARTMENT REPAIR COMPARED TO THOSE UNDERGOING ANTERIOR OR APICAL REPAIRS
Priyanka Gupta, MD¹; Natalie Gaines, MD¹; Kim A. Killinger, MSN¹; Judith A. Boura, MS²; Larry T. Sirls, MD²
¹Beaumont Health, Royal Oak, MI; ²Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI
Presented By: Priyanka Gupta

Poster #M61
POST-SURGICAL TELEPHONE SURVEILLANCE IN GLOBAL HEALTH MISSION WORK
David Rapp MD¹; Andrew Colhoun MD²; Timothy Bradford MD²
¹Virginia Urology Center for Incontinence and Reconstruction; ²Richmond, VA
Presented By: David Rapp

Poster #M62
CLINICAL OUTCOMES AFTER OPERATIVE MANAGEMENT OF COMPLICATIONS RESULTING FROM TRANSVAGINAL MESH FOR PELVIC ORGAN PROLAPSE
Josh Yune; Sam Siddighi, MD¹; Andrea Staack, MD²; Jeffrey Hardesty, MD¹
¹LLU Ob/Gyn FPMRS; ²LLU Urology
Presented By: Junchan Yune

Poster #M63
SYMPTOMS OF URGENCY, FREQUENCY, OVER ACTIVE BLADDER WET AND NOCTURIA CAN BE CURED BY PELVIC FLOOR SURGERY USING ELEVATE ANTERIOR/APICAL AND ELEVATE POSTERIOR/APICAL
Bernhard Liedl, MD¹; Edward Stanford, MD²; Prof. Suzette Sutherland²
¹Pelvic Floor Centre Munich; ²Oasis International Hospital, Beijing, China; ²University of Washington Medical Center, Seattle, WA
Presented By: Bernhard Liedl

Poster #M64
A RETROSPECTIVE COMPARISON OF DYSPAREUNIA AND MESH EXPOSURE OUTCOMES FOR PATIENTS WHO HAVE UNDERGONE GYNNESH (PROLIFT) AND NOVASILK (EXAIR) FOR TREATMENT OF PELVIC ORGAN PROLAPSE (POP)
Angel Gonzalez Rios, MD; Sonya Ephraim, MD; Miles Murphy, MD; Vincent Lucente, MD
The Institute for Female Pelvic Medicine and Reconstructive Surgery
Presented By: Angel Gonzalez Rios
*Pelvic Organ Prolapse/Reconstruction Non-Moderated Poster Session
Saturday, February 27, 2016
8:00 a.m. – 9:30 a.m.
*Not CME Accredited

**Poster #NM94**
THE EFFECT OF VAGINAL ESTROGEN ON THE EXTRACELLULAR MATRIX IN WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE
Cantey C. Hattink; Jennifer L. Lanzer, MD; Stacey C. Schutte, PhD; Gina M. Northington, MD, PhD
Emory University School of Medicine, Atlanta, GA
Presented By: Cantey Hattink

**Poster #NM95**
EARLY EXPERIENCE WITH ROBOTIC-ASSISTED LAPAROSCOPIC SACROCOLOPEXY (RALS) WITH ALLOGRAFT FASCIA LATA IN PATIENTS WITH PRIOR MESH COMPLICATIONS
Tamara P. Lhungay, BS; Nicholas Westfall, MD; Stephen Blakely, MD; Brian J. Flynn, MD
Aurora, CO
Presented By: Tamara Lhungay

**Poster #NM96**
ACCURACY OF A PORTABLE BLADDER SCANNER IN MEASURING PVR IN WOMEN WITH PELVIC ORGAN PROLAPSE
Steven Weissbart, MD¹; Mary Wang, MSN, CRNP²; Diane Newman, DNP²; Tom Bavaria, BS²; Lily Arya, MD¹; Alan Wein, MD, FACS, PhD²; Ariana Smith, MD²
¹Division of Urogynecology and Pelvic Reconstructive Surgery, University of Pennsylvania, Philadelphia, PA; ²Division of Urology, University of Pennsylvania, Philadelphia, PA
Presented By: Steven Weissbart

**Poster #NM97**
HIGH MIDLINE LEVATOR MYORRHAPHY FOR VAGINAL VAULT PROLAPSE: LONG-TERM RESULTS
Yuefeng Wu; Alana L. Christie; Feras Alhalabi; Philippe E. Zimmern
UT Southwestern Medical Center, Dallas, TX
Presented By: Yuefeng Wu

**Poster #NM98**
TRENDS IN MESH USAGE AND RESIDENT INVOLVEMENT FOR VAGINAL SURGERY FROM THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM
Devin Haddad, BS¹; Louis Krane, MD²; Majid Mirzazadeh, MD¹; Gopal Badlani, MD¹
¹Wake Forest University School of Medicine, Winston-Salem, NC; ²National Cancer Institute, Bethesda, MD
Presented By: Majid Mirzazadeh

**Poster #NM99**
OUTCOMES OF PREGNANCY FOLLOWING SURGERY FOR PELVIC ORGAN PROLAPSE: A SYSTEMATIC REVIEW
A. Lenore Ackerman, MD, PhD¹; Karyn S. Eilber, MD²; Ashley T. Caron²; Matthew E. Pollard, MD¹; Jennifer T. Anger, MD²
¹David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Department of Surgery, Division of Urology, Cedars-Sinai Medical Center, Los Angeles, CA
Presented By: A. Lenore Ackerman

**Poster #NM100**
HOW TO TEACH A ROBOTIC-ASSISTED SACROCOLOPEXY (RASCP): A REVERSE STEP-WISE APPROACH TO SURGICAL EDUCATION
Jessica Harroche, MD³; Daniela Carlos, MD¹; Melissa Laudano, MD³; Nicole Fleischmann, MD³
¹Department of OB/GYN, Montefiore Med. Ctr. / Albert Einstein Coll. of Med., Bronx, NY, USA.; ³Department of Urology, Montefiore Med. Ctr. / Albert Einstein Coll. of Med., Bronx, NY, USA.
Presented By: Jessica Harroche
Poster #NM101
ABDOMINAL VERSUS VAGINAL COLPOPEXY FOR APICAL PROLAPSE: A COMPARISON OF NATIONAL PATIENT CHARACTERISTICS AND COMPLICATIONS
Marissa C. Velez, MD¹; Wilson Sui¹; Maxwell James¹; Justin T. Matulay, MD¹; Cara Grimes, MD²; Doreen E. Chung, MD¹
¹Department of Urology, Columbia University, New York, NY; ²Department of Obstetrics & Gynecology, Columbia University, New York, NY
Presented By: Marissa Velez

Poster #NM102 – WITHDRAWN

Poster #NM103
ANALYSIS OF RESIDENT IMPACT ON FLOW DISRUPTIONS DURING ROBOTIC SURGERY
Tom Feng, MD¹; Nicole Tauri, BS, MPH³; Ken Catchpole, PhD¹; Karyn Eilber, MD¹; Jennifer Anger, MD, MPH¹
¹Cedars Sinai Medical Center, Los Angeles, CA; ²UCLA, Los Angeles, CA
Presented By: Tom Feng

Poster #NM104
PREVALENCE OF DEFECATORY SYMPTOMS IN PATIENTS WITH POSTERIOR VAGINAL WALL DEFECTS ON DYNAMIC MRI
My-Linh Nguyen, MD¹; Seth A. Cohen, MD²; Christine C. Pan, MD³; Vincent N. Vu, BS⁴; Jenny Y. Mei, BS⁵; Elizabeth Fisseha, BS, MS⁶; Zaid Chaudhry, MD¹; Janine L. Oliver, MD²; Evgeniy I. Kreydin, MD²; Shlomo Raz, MD²; Christopher M. Tarnay, MD¹
¹Department of Obstetrics and Gynecology, UCLA David Geffen School of Medicine. Los Angeles, CA; ²Department of Urology, UCLA David Geffen School of Medicine. Los Angeles, CA; ³Department of Obstetrics and Gynecology, University of Texas. Houston, TX; ⁴Department of Biostatistics, UCLA School of Public Health. Los Angeles, CA; ⁵David Geffen School of Medicine, UCLA. Los Angeles, CA
Presented By: My-Linh Nguyen

Poster #NM105
THE USE OF DEFECOGRAPHY TO IDENTIFY SYMPTOMATIC ENTEROCELES
Alexandriah Alas, MD¹; Juzar Jamnagerwalla, MD²; Shellee Ogawa, BS³; Benjamin Basseri, MD²; Karyn Eilber, MD²; Jeffrey Conklin, MD³; Mark Pimental, MD²; Jennifer Anger, MD, MPH²
¹Cleveland Clinic Florida, Weston, FL; ²Cedars-Sinai Medical Center, Los Angeles, CA; ³UCLA, Los Angeles, CA
Presented By: Juzar Jamnagerwalla

Poster #NM106
THE IMPACT ON INTERNET SEARCH ACTIVITY AND MEDIA COVERAGE AFTER THE FDA SAFETY COMMUNICATION ON SURGICAL MESH FOR PELVIC ORGAN PROLAPSE
Benjamin Stone, BA; James Forde, MD; Richard Lee, MD, MBA; Alexis Te, MD; Bilal Chughtai, MD
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Presented By: Benjamin Stone

Poster #NM107
RISK OF PROLAPSE RECURRENCE AFTER NATIVE TISSUE ANTERIOR PROLAPSE REPAIR WITH INTERMEDIATE TO LONG-TERM FOLLOW-UP
Rebecca S. Lavelle, MD; Alana L. Christie; Feras Alhalabi, MD; Philippe E. Zimmern, MD
¹UT Southwestern Medical Center, Dallas, TX
Presented By: Philippe Zimmern

Poster #NM108
INCIDENCE OF POSTOPERATIVE URINARY RETENTION FOLLOWING OBLITERATIVE PELVIC ORGAN PROLAPSE SURGERY
Hemikaa Devakumar, MD¹; Alexandriah Alas, MD¹; Luis Espaillat, MD¹; Ryan Hidalgo, MD¹; Willy Davila, MD¹; Eric Hurtado, MD²
¹CCF, Weston, FL; ²Cleveland Clinic Florida, Weston, FL
Presented By: Eric Hurtado
Poster #NM109
PROLAPSE REPAIR WITH NON-FROZEN CADAVERIC FASCIA LATA: LONG-TERM RESULTS
Steve Rivera MD¹; Sharon Mee MD²; Gary Leach MD²
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Presented By: Steve Rivera

Poster #NM110 – WITHDRAWN

Poster #NM111
SURGICAL OUTCOMES AFTER PELVIC ORGAN PROLAPSE REPAIR WITH HYSTEROPEXY USING TRANSVAGINAL MESH
Natalie Gaines, MD¹; Priyanka Gupta, MD¹; Kim A. Killinger, MSN¹; Judith A. Boura¹; Larry T. Sirls, MD¹ ²
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Presented By: Natalie Gaines

Poster #NM112
SURGICAL MANAGEMENT OF LOWER URINARY TRACT PERFORATION FOLLOWING PRIOR MESH PROLAPSE REPAIR: MESH EXCISION AND URINARY TRACT RECONSTRUCTION
Nicholas Westfall, MD; Stephen Blakely, MD; Brain Flynn, MD
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Presented By: Nicholas Westfall

Poster #NM113
TEN-YEAR OUTCOMES OF RECTOCELE REPAIR IN A TERTIARY REFERRAL SETTING
Sarah A. Adelstein; Kevin Gioia; Erika M Wolff; John D. Massman; Alvaro Lucioni; Una J. Lee; Blair B. Washington; Fred E. Govier; Kathleen C. Kobashi
Virginia Mason, Seattle, WA
Presented By: Sarah Adelstein

Poster #NM114
LONG TERM OUTCOMES FOR AXIS™ DERMIS FOR FEMALE PELVIC FLOOR REPAIR
Nima Shah, MD¹; Natasha Ginzburg, MD²; Rebecca Rinko, DO²; Melissa Dawson, DO³; G. Willy Davila, MD³; Vincent Lucente, MD³; Peter Rosenblatt, MD⁴; Douglas Van Drie, MD⁵; Kristene Whitmore, MD⁶
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Presented By: Nima Shah

Poster #NM115
PERIOPERATIVE OUTCOMES FOLLOWING OPEN AND MINIMALLY INVASIVE URETERAL REIMPLANT: AN ANALYSIS OF 512 CASES FROM THE NATIONAL SURGICAL QUALITY IMPROVEMENT (NSQIP) DATABASE
Vignesh T. Packiam, MD; Andrew J. Cohen, MD; Joseph J. Pariser, MD; Charles U. Nottingham, MD; Sarah F. Faris, MD; Gregory T. Bales, MD
University of Chicago Medicine, Chicago, IL
Presented By: Vignesh Packiam

Poster #NM116
ADULT MALE ANTERIOR URETHRAL STRICTURES: PRACTICE PATTERNS IN THE MID-ATLANTIC REGION
Michael Con solo, DO¹; Kirin Syed, DO¹; Christopher Robison, DO¹; Jacob McFadden, MD³; Gordon Brown, DO¹; David Sussman, DO³; Bradley Figler, MD³
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Presented By: Michael Con solo
Poster #NM117
SLING INCISION IS NOT ALWAYS SUFFICIENT
Himanshu Aggarwal, MD; Philippe E. Zimmern, MD
UT Southwestern Medical Center
Presented By: Himanshu Aggarwal

Poster #NM118
OUTCOMES AND COMPLICATION RATES FOR CYSTECTOMY AND URINARY DIVERSION FOR BENIGN INDICATIONS: A SURVIVAL ANALYSIS
Yahir Santiago-Lastra, MD¹; Michael Mathis, MD²; Elizabeth Andraska, BA¹; Aleda Thompson, MS²; Ann Oldendorf, MD¹; Bahaa Malaeb, MD¹; Anne P. Cameron, MD¹; J. Quentin Clemens, MD¹; John T. Stoffel MD¹
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Presented By: Yahir Santiago-Lastra

Poster #NM119
COMPARATIVE ANALYSIS OF HOSPITAL-BASED OUTCOMES IN PATIENTS UNDERGOING URINARY DIVERSION FOR BENIGN DISEASE
Charles Nottingham, MD, MS; Joseph Pariser, MD; Andrew Cohen, MD; Vignesh Packiam, MD; Sarah Faris, MD; Gregory Bales, MD
University of Chicago Medicine, Chicago, IL
Presented By: Charles Nottingham

Poster #NM120
FOLEY OR FIX: COMPARATIVE ANALYSIS OF FOLEY, ABBREVIATED URETHROPLASTY, AND MOBILIZATION WITH PRIMARY URETHRAL ANASTOMOSIS AT THE TIME OF AUS EXPLANTATION FOR CUFF EROSION
Nathan Chertack, BS¹; Hemant Chaparala, BS¹; Kenneth Angermeier, MD²; Drogo Montague, MD²; Hadley Wood, MD²
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Presented By: Nathan Chertack

Poster #NM121
A TERTIARY EXPERIENCE OF ILEAL-URETER SUBSTITUTION: CONTEMPORARY INDICATIONS AND OUTCOMES
Sachin Malde, MBBS, FRCS; Marco Spilotros, MD; Mahreen Pakzad, MBBS, FRCS; Rizwan Hamid, MD, FRCS; Julian Shah, MD, FRCS; Tamsin Greenwell, MD, FRCS; Jeremy Ockrim, MD, BSc (Hons), FRCS
Institute of Urology at UCLH, London, UK
Presented By: Sachin Malde

Poster #NM122
PERIOPERATIVE OUTCOMES OF VESICOVAGINAL FISTULA REPAIR: VAGINAL VERSUS ABDOMINAL SURGICAL APPROACH
Deborah Hess, MD¹; Valary Raup, MD¹; Julian Hanske, MD²; Manuel Ozambela, BS¹; Marianne Schmid, MD³; Portia Thumond, MD⁴; Briony Varda, MD¹; Quoc-Dien Trinh, MD¹; Jairam Eswara, MD¹
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Presented By: Deborah Hess
**Poster #BS26**

**SELECTIVE PHARMACOLOGICAL INHIBITION OF PHOSPHODIESTERASE TYPE-1 AS A NOVEL APPROACH TO CONTROL HUMAN DETRUSOR SMOOTH MUSCLE FUNCTION**

Georgi Petkov, PhD; Wenkuan Xin, PhD¹; Ning Li, MD¹; Vitor Fernandes, PhD¹; Biao Chen, MD¹; Eric Rovner, MD²

¹Columbia, SC; ²Charleston, SC

Presented By: Georgi Petkov

**Introduction and Objectives:** Large conductance Ca²⁺-activated K⁺ (BK) channels are critical regulators of detrusor smooth muscle (DSM) function. We aimed to investigate phosphodiesterase type 1 (PDE1) interactions with BK channels in human DSM to determine the mechanism by which PDE1 regulates human urinary bladder function.

**Methods:** A combined electrophysiological, functional, and pharmacological approach was applied using human DSM specimens obtained from open bladder surgeries. The perforated whole cell patch-clamp technique was used to record transient BK currents (TBKCs) and the cell membrane potential in freshly-isolated human DSM cells in combination with the selective PDE1 inhibitor, 8-methoxymethyl-3-isobutyl-1-methylxanthine (8MM-IBMX). Isometric tension recordings were used to measure spontaneous phasic and electrical field stimulation (EFS)-induced contractions in human DSM isolated strips.

**Results:** Selective pharmacological inhibition of PDE1 with 8MM-IBMX (10 µM) increased TBKC activity in human DSM cells, which was abolished by subsequent inhibition of protein kinase A (PKA) with H-89 (10 µM). The stimulatory effect of 8MM-IBMX on TBKCs was reversed upon activation of muscarinic acetylcholine receptors with carbachol (1 µM). 8MM-IBMX (10 µM) hyperpolarized the DSM cell membrane potential, an effect blocked by PKA inhibition. 8MM-IBMX significantly decreased spontaneous phasic and nerve-evoked contractions of human DSM isolated strips.

**Conclusions:** The results reveal that pharmacological inhibition of PDE1 attenuates human DSM excitability and contractility by activating BK channels via a PKA-dependent mechanism. The data also suggest interactions between PDE1 and muscarinic signaling pathways in human DSM. Overall, our data provide mechanistic evidence that pharmacological inhibition of PDE1 can be a useful therapeutic approach for the treatment of overactive bladder (OAB) by attenuating DSM excitability and contractility. These investigations are an important step in validating PDE1 as a potential novel therapeutic target for OAB. We hope that this study will stimulate interest in the development of novel PDE1 inhibitors for OAB treatment.

**Support by:** NIH R01 DK106964 and R01 DK084284 to Georgi Petkov
**Poster #BS1**

**VAGINAL MECHANICALLY-TRIGGERED ATP SIGNALING IS IMPAIRED IN Ovariectomized MICE**  
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Presented By: Jessica Harroche

**Introduction and Objectives**: Significant advancements in better understanding male sexual function led to marked improvements in clinical management of male sexual disorders. In contrast, research in female sexual function lags significantly. While neural, vascular and hormonal factors are known modulators of clitoral and vaginal smooth muscle function, the roles played by various local regulatory factors, such as ATP, have yet to be described. It is increasingly apparent that the epithelium plays key roles in the sensory and motor functions of the genitourinary system. It has been shown that distension of hollow organs leads to ATP release from the lining epithelium, conveying information to the CNS via subepithelial sensory nerve fibers. Little is known about the extent to which mechanical stimulation induces ATP release from vaginal epithelium and the potential role of vaginal mechanosensory ATP signaling in female sexual function. Determine whether mechanical stimulation of the vagina triggers vaginal epithelial ATP release, and investigate whether mechanically-triggered ATP release is altered in an animal model of menopause.

**Methods**: Ten three-month old C57Bl/6 female mice were divided into two groups; five mice underwent bilateral ovariectomy (OVX) and five mice underwent sham laparotomy. ATP was collected under anesthesia from vaginal secretions at baseline and immediately after standardized intravaginal mechanical stimulation. ATP released amounts were measured using the Luciferin-luciferase method. Data is expressed as mean±SEM.

**Results**: Intravaginal mechanical stimulation induced significant ATP release in the vagina lumen, which was 3.5 times higher than baseline levels (Baseline: 122.6 ± 24.7nM vs Stimulated: 422.0 ± 13.1nM; P<0.0001). At four weeks post-surgery, the baseline vaginal epithelial ATP release measured from sham and OVX groups was not significantly different (Sham: 19.9 ± 4.7nM vs OVX: 31.0 ± 17.0nM). However, the response of OVX mice to mechanical stimulation was significantly reduced compared to sham mice (Sham: 472.0 ± 110.7nM vs OVX: 122.3 ± 51.5nM; P<0.05).

**Conclusion**: In this study we show that intravaginal mechanical stimulation triggers ATP release that is blunted in surgically-induced menopausal mice. These findings suggest a role for ATP signaling in vaginal mechanosensory pathways that regulate female sexual function, and opens a new area of research to identify novel therapeutic targets to manage age-related female sexual disorders.
Poster #BS2
RABBIT BLADDER DETRUSOR SMOOTH MUSCLE (RDSM) IS A VISCOELASTIC-PLASTIC MATERIAL
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Presented By: Christopher Neal

Introduction and Objectives: Biological soft tissues are viscoelastic; they display time-independent elasticity and time-dependent viscosity. Upon an imposed ramp increase then decrease in strain (Y), the resultant increase in stress (X) termed loading (L) and decrease in X (unloading, UL) produce X-Y curves that are generally nonlinear. The ratio of the area under UL to that under L (resilience, R) identifies the relative viscosity (lower R values = higher viscosity). However, several investigators have suggested that bladder tissue may also display plastic behavior (slippage resulting in a gain in Y or loss of X unrecoverable unless work is done by the material). Use L-UL cycling to construct X-Y curves and characterize the material properties of rDSM, and quantify certain constitutive equations representative of bladder biomechanics.

Methods: Each rDSM strip was secured in an organ bath between a servo-controlled lever and length adjuster and subjected to three protocols: 1) Voiding-Mimetic Protocol (VMP): Contract for 3 min with KCl, washout KCl in a Ca²⁺-free solution to allow full relaxation, impose a single ramp L-UL cycle. 2) Preconditioning Protocol (PP): Incubate tissues in a Ca²⁺-free solution and impose 7 sequential ramp L-UL cycles. 3) Viscous-Return Protocol (VRP): Following a wait-period of 10 min in a Ca²⁺-free solution after the PP, impose a single ramp L-UL cycle. Each ramp L-UL cycle started and ended at 80% of a reference length (Lref), ramped to 15% Lref, and lasted 2 sec.

Results: Following VMP, the X-Y L curve was linear (X = 181.7Y + 4.4 kPa), and the UL curve was exponential (X = 0.2e31.9Y kPa) and R = 0.34 ± 0.01 (n=4). PP caused rDSM to lose ~37% of peak X and to behave as a pseudo-elastic material (L: X = 18.45e15.61Y kPa, UL: X = 0.2e29.34Y kPa) with a higher R value (0.53 ± 0.02, n=4). VRP restored viscosity (R = 0.38 ± 0.03, n=4) and a linear L curve (X = 10.16Y + 2.8 kPa), but did not restore peak X. Loss of peak X revealing plastic deformation was nearly fully recovered by muscle contraction at 80% Lref, but not in the presence of a rhoA kinase blocker that inhibited contraction.

Conclusion: These data support the hypothesis that rDSM is a viscoelastic-plastic material. The plastic component appears to reflect actomyosin crossbridge activity even when the tissue is in a Ca²⁺-free solution. Such “reversible plasticity” may be a unique biomechanical feature of DSM that represents a novel molecular explanation for high bladder compliance.
Poster #BS3
SLOWLY CYCLING ACTOMYOSIN CROSSBRIDGES (XBS) IN “RESTING” DETRUSOR SMOOTH MUSCLE (DSM) PERMITS SMART DAMPER-STYLE BLADDER BIOMECHANICAL BEHAVIOR
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Presented By: Eugene Bell

Introduction and Objectives: Smart dampers used in construction of earthquake-resistant buildings change their damping material from solid to liquid upon loading. Analogously, DSM acts as a smart damper during rapid versus slow loading. For example, DSM is less compliant during rapid than slow filling (loading). This likely permits urinary bladder to retain its shape when “holding” heavy liquid (urine) despite periodic rapid “jarring”-type loading due to everyday activities such as climbing steps, while readily accommodating additional fluid during slow filling. Excess DSM strain would prematurely activate stretch-sensitive nerves responsible for fullness sensation. The precise molecular mechanism for bladder smart damping remains to be determined. We tested the hypothesis that slowly-cycling XBs are active when DSM is “at rest” during the filling phase, and that this permits low instantaneous bladder compliance while simultaneously allowing for a ratcheting-style high compliance during slow filling.

Methods: Each isolated muscle strip devoid of mucosa dissected from a rabbit bladder was secured in an organ bath between a force transducer and length adjuster. To mimic voiding, tissues were unloaded to 60% of a reference length (Lref), briefly contracted with KCl and then fully relaxed. This voiding-mimetic protocol (VMP) was found previously to re-establish smart damper behavior. The selective actomyosin XB inhibitor, blebbistatin, was used to determine whether smart damping was due to slowly-cycling XBs.

Results: Resting preload at 80% Lref was high following VMP (~1-fold control) and low following an 80%-100%-80% load-unload cycle (~0.4-fold control; p<0.05, n=4), revealing smart damping. Following a VMP at 60% Lref, tissues subsequently exposed to blebbistatin for 60 min displayed loss of smart damping: significantly lower preload (~0.5-fold control, p<0.05, n=4) after loading to 80% Lref than control tissues not exposed to blebbistatin.

Conclusion: These data support the hypothesis that DSM actomyosin XBs serve as: 1) “rapid contractors” responsible for muscle force development and shortening required for voiding, and 2) “tension-holders” to provide instantaneous stiffness to maintain bladder shape during filling. Slow cycling of the tension-holding XBs may be at a rate ideal to allow “slipping” and high compliance during slow filling. Differential regulation of these different XB modes may provide a novel target for therapy of over- and under-active bladder.
URETHRAL AND DETRUSOR DYSFUNCTION ARE DETERMINED BY THE SEVERITY OF A CONTUSION-SCI IN FEMALE RATS

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Presented By: Alvaro Munoz

Introduction and Objectives: Rodent models for the study of neurogenic bladder dysfunction (NBD) after spinal cord injury (SCI) are difficult to standardize, mainly due to the reproducibility of partial cord transections, or the severity of a complete transection. The purpose of this study was to characterize the degree of NBD associated with a highly reproducible, contusion-induced, SCI in female rats.

Methods: We used an infinite horizon impactor to create a contusion SCI with a targeted magnitude of either 100 (102+/−0.75; 100kDy group) or 200 (204+/−1.5; 200kDy group) kDynes at the Th8/Th9 region of SD rats. Rats were video recorded to evaluate locomotion with the BBB scale that varies from 0 (no hind-leg movement) to 21 (normal function). After four weeks, cystometry (CMG) was performed via a suprapubic catheter in under urethane anesthesia. Data were analyzed with unpaired t-tests. Values represent mean+/− SEM and p<0.05 was significantly different.

Results: The BBB score at three days after SCI was 9.2+/−2.9 and 2.0+/−0.6, while at four weeks was 19.7+/−0.6 and 12.0+/−4.5 in the 100kDy and 200kDy groups, respectively. During CMG we saw increased intercontractile intervals in the 100kDy group, while 200kDy showed clear detrusor-sphincter dyssynergia with irregular voiding intervals and non-voiding contractions (NVC; fig1). We found a significantly high frequency of NVC in both SCI groups (23.4+/−6.9 in 100kDy, and 30.0+/−7.8 NVC/h in 200kDy). The duration of intraluminal pressure high frequency oscillations was increased (2.1+/−0.2s in intact, 4.9+/−0.7s in 100kDy, and 6.0+/−2.1s in the 200kDy rats). Micturition volume was significantly reduced in 200kDy SCI group (0.37+/−0.05ml in intact, 0.52+/−0.11ml in 100kDy, and 0.09+/−0.02ml in the 200kDy rats). The flow rate was significantly impaired in the 200kDy group (0.18+/−0.04ml/s in intact, 0.11+/−0.03ml/s in 100kDy, and 0.02+/−0.01ml/s in the 200kDy rats).

Conclusion: Our results suggest that a computer-controlled contusion SCI creates a reproducible urethral and bladder dysfunction that is proportional to the applied force. This NBD model simulates the human condition where traumatic SCI are more frequent.

Support: The Houston Methodist, Cullen and Brown Foundations.
Poster #BS5
THE ROLES OF EXTRACELLULAR SIGNAL-REGULATED KINASE SUBTYPE 1 (ERK1) IN MODULATING BLADDER PAIN AND PELVIC PAIN
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St. Louis, MO
Presented By: Henry Lai

Introduction and Objectives: Activation of spinal extracellular signal-regulated kinases (ERK1/2) has previously been shown to be associated with the development of central sensitization and bladder hyperalgesia in the mouse model of cyclophosphamide (CYP)-induced cystitis. However, the differential contribution of extracellular signal-regulated kinase subtype 1 (ERK1) versus subtype 2 (ERK2) has not been elucidated. The objective of this study is to examine the roles of extracellular signal-regulated kinase subtype 1 (ERK1) in modulating bladder pain and pelvic mechanical allodynia using knockout mice.

Methods: Mice that lacked expression of ERK1 (knockout) and wildtype littermate were used for the experiments. Cyclophosphamide (CYP) cystitis was induced by intraperitoneal injection of 150 mg/kg CYP (acute single dosing). Bladder pain was evoked by phasic distention of the bladder (20-60 mmHg, 10 sec) and quantifying the visceromotor response (VMR) of the abdominal musculature. The VMR (rectified area under the curve) was used as a surrogate measure of bladder pain. Mechanical allodynia of the pelvis and the suprapubic region was measured using calibrated von Frey filaments (vF) to evoke a nocifensive response. The VMR and vF responses of ERK1 knockout and wildtype littermate mice were compared before and after cyclophosphamide administration.

Results: In both ERK1 knockout mice and wildtype mice, cyclophosphamide evoked an increase in the abdominal visceromotor response (VMR) and nocifensive response to von Frey filaments (vF), indicating the development of bladder hyperalgesia and pelvic mechanical allodynia in response to cystitis. There was no difference in VMR and vF responses between ERK1 knockout and wildtype mice prior to the induction of cyclophosphamide cystitis. However, ERK1 knockout mice exhibited reduced VMR and vF responses compared to wildtype mice after the induction of cyclophosphamide cystitis.

Conclusion: Extracellular signal-regulated kinase subtype 1 (ERK1) plays a role in modulating bladder pain and pelvic pain in the cyclophosphamide cystitis model. Mice lacking expression of ERK1 exhibited reduced bladder and pelvic hyperalgesia during bladder inflammation.

Funding: NIDDK
EFFECT OF EARLY SACRAL AND PUDENDAL NEUROMODULATION ON THE LOWER URINARY TRACT IN SCI MINIPIGS
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Presented By: Elena Foditsch

Introduction and Objectives: Sacral neuromodulation (SNM) and pudendal neuromodulation (PNM) are therapeutic approaches to modulate lower urinary tract (LUT) function after certain bladder disorders. However, for complete spinal cord injury (SCI), effects of neuromodulation need further investigation prior to human application. To determine the effects of early bilateral SNM and PNM on the LUT in complete SCI minipigs.

Methods: 11 minipigs with complete SCI at thoracic level T11-T12 and six healthy minipigs (references) were included: SNM (n = 4), PNM (n = 4) and SCI control (SCIC, n=3). Neuromodulation devices (electrodes and pacemakers) were funded by a grant of Medtronic, Inc. Stimulation was set on one week after SCI. Conscious urodynamics were performed weekly. After a 4 month follow up, samples were taken for analyses.

Results: SCIC and PNM minipigs showed the typical SCI reflex bladder post SCI with low bladder capacities at high detrusor pressures. In comparison to that, SNM minipigs showed higher bladder capacities at low detrusor pressures during follow up. All SCI minipigs showed significant increases in bladder wall thickness (p<0.001) with connective tissue being increase, while smooth muscle tissue was decrease. Opposite to that, SNM minipigs showed a higher smooth muscle content, being closer to the healthy controls.

Conclusion: After SCI, LUT and SC both undergo naturally major, irreversible alterations. Prevention is not yet available. However, early intervention by SNM improved tissue integrity and functionality of the LUT and prevented it from undergoing major structural changes. In conclusion, early SNM supports tissue integrity and function of the LUT after SCI.
A NEW NON-SURGICAL TECHNIQUE FOR A MINIMALLY-INVASIVE COMPLETE SPINAL CORD LESION IN MINIPIGS
Elena Foditsch, PhD; Karin Roider, MSc; Prof. Karl-Dietrich Sievert, MD; Reinhold Zimmermann, MD
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Presented By: Elena Foditsch

Introduction and Objectives: One of the most severe bladder dysfunctions is the neurogenic bladder after a complete spinal cord injury (SCI). It harbours both a huge range of morbidity and life threatening conditions. The pig is proposed as the optimum model for urological SCI research. Current SCI models require an open surgery with a laminectomy to access the spinal cord. The inherent risks for the animals are mainly the potential blood loss, cerebrospinal fluid leakage and the recovery from a medium to large open surgery in an organism which is already weakened by the new SCI onset. To develop a minimally invasive method for SCI lesion in minipigs.

Methods: Ten female, adult Göttingen minipigs (mp) were included. In general anaesthesia, a control CT of the spinal cord was performed. The mps were placed in prone position. Needle puncture was performed by the Seldinger technique. After skin incision, the spinal channel (SC) at level Th13/L1 was punctured under CT-guidance. A hydrophilic guide wire was inserted into the extradural space until level Th8. After dilatation of the insertion site, a kyphoplasty balloon catheter with radioopaque markers was inserted via the guide wire to the level Th12. Once the position was confirmed, the balloon was inflated to 2 atm left in place for 30 minutes, controlled by a manometer to ensure constant pressure. After completion, pressure was released the balloon catheter incl. guide wire was removed. A final CT of the lesion site was performed.

Results: All mps could be done by the procedure. It was highly standardized and all steps were reproducible. The duration was about 60 minutes. Only minor skin bleeding was seen. Piercing of the dura was excluded by CT. The lesion level was clearly defined. The SC was completely filled by the inflated balloon. The balloon pressure was maintained without losses. The lesion site was clearly discernible and no intradural bleeding was observed on CT images. SCI recovery was fast and body balance was restored immediately after injury.

Conclusion: We could establish a new, minimally invasive, highly standardized, CT-guided spinal cord injury procedure for large animal models. All risks of the open surgery can be excluded by this technique. Standardization is easily proven by CT images. The CT SCI lesion technique is smart as it avoids a long surgery and a big trauma.
RECOVERY OF BLADDER FULLNESS SENSATION THROUGH THE REINNERVATED NEURONAL PATHWAY CREATED BY FEMORAL OR GENITOFEMORAL NERVE TRANSFER TO ANTERIOR VESICAL NERVE BRANCHES IN THE DECENTRALIZED CANINE BLADDER

Mary F. Barbe, PhD¹; Sandra Gomez-Amaya, DVM²; Alan Braverman PhD²; Neil Lamarre, PhD³; Michael Ruggieri, Sr., PhD²
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Presented By: Mary Barbe

Introduction and Objectives: We previously demonstrated bladder motor reinnervation in 21 of 28 animals. This study investigates whether these nerve transfers also result in sensory reinnervation capable of sensing bladder fullness.

Methods: Bladders were decentralized by transection of all nerve roots caudal to L7, confirmed by disappearance of S1-2 sacral spinal cord functional electrical stimulation (FES) induced detrusor pressure. Reinnervation surgeries were bilateral genitofemoral nerve (GFN) to bilateral PN transfer (GFNT: N=12) and left femoral nerve (FN) to bilateral PN transfer (FNT: N=8). Controls included 3 sham, 3 unoperated and 5 decentralized. Video surveillance cameras allowed recording frequency and duration of urination postures by observers blinded to the surgical treatment six months after reinnervation surgeries. Fluorogold retrograde nerve labeling dye was injected into the bladder wall three weeks before euthanasia approximately eight months after reinnervation surgery. Functional reinnervation was defined by increased detrusor pressure with FES of spinal cord segments, spinal roots or transferred nerves. The number of dorsal root ganglia (DRG) cells retrogradely labeled from the bladder was counted from the 10th thoracic segment through the 1st coccygeal segment by observers blinded to the surgical treatment.

Results: 8 of 12 GFNT and 7 of 8 FNT dogs had return of bladder function. Urination frequency was higher in GFNT, but FNT animals were no different than controls. Retrograde labeling of DRG neurons (figure) was observed in the not transected L7 DRG in the decentralized animals. The numbers of labelled neurons in L1-L4 DRG were significantly increased in FNT animals, and in L2, L3 and L5 of GFNT animals, compared to sham/unoperated and decentralized animals.

Conclusion: The characteristic urination posture in reinnervated dogs strongly indicates the ability to sense bladder fullness that is likely transmitted by sensory afferents in the newly established neuronal pathway. Whether neuroplasticity allows this sensation to initiate bladder emptying and whether it occurs by Valsalva straining is being investigated.
**Poster #BS9**
**OAB WITHOUT AN “OVERACTIVE BLADDER”**
James Hokanson, PhD; Christopher Langdale, MS; Warren Grill, PhD
Durham, NC
Presented By: James Hokanson

**Introduction and Objectives:** Although a diagnosis of an overactive bladder (OAB) is based on urinary urgency, there is a strong connotative link between OAB and some underlying bladder pathophysiology. Although the underlying pathophysiology is typically thought to involve detrusor overactivity or some other bladder specific problem (e.g., bladder afferent hypersensitivity), this may not be the case. Intravesical administration of Prostaglandin E2 (PGE2) is used to create a model of overactive bladder in rats. Additionally, intravesical administration of PGE2 in healthy women created a sense of urinary urgency. Despite these applications, relatively few consistent in vivo results have been reported regarding the impact of PGE2 on the lower urinary tract. Characterize the response of the lower urinary tract to intravesical infusion of PGE2.

**Methods:** Female Wistar rats aged 15 – 23 weeks were anesthetized (urethane, 1.2 g/kg S.C.) and single fill cystometrograms were conducted with saline or PGE2 (100 µM). Wires were inserted percutaneously into the pelvic floor to record external urethral sphincter (EUS) activity.

**Results:** Intravesical PGE2 administration generated a decrease in bladder capacity (-17 ± 7.5%, p = 0.040, n=10) compared to saline. Contrary to expectations, there was no clear appearance of large non-voiding contractions which would be suggestive of detrusor overactivity. There was also no clear change in bladder compliance (p = 0.62, n=10). The clearest and most consistent change was an increase in EUS activity during filling (see figure), which may be compensatory due to urethral smooth muscle relaxation. In some animals continued administration of PGE2 led to urinary leakage at low bladder volumes.

**Conclusion:** Prior studies of PGE2 focused on the ability of PGE2 to contract the bladder; however, this was primarily in rat bladder strip preparations. Our in vivo rat model results suggest that urethral smooth muscle relaxation may be a crucial factor contributing to the urgency and decreased bladder capacity observed during intravesical PGE2 administration. These results also suggest that some cases of OAB may be due to urethral dysfunction rather than solely from bladder pathophysiology.
Poster #BS10
LONG TERM PERSISTENCE OF INCONTINENCE IN THREE STRESS INCONTINENCE RAT MODELS: VAGINAL DISTENSION, URETHROLYSIS, AND PUBO-URETHRAL LIGAMENT INJURY
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Presented By: Bertha Chen

Introduction and Objectives: Stress urinary incontinence (SUI) is a debilitating, chronic condition for many adult women. The exact pathophysiology remains incompletely understood and current treatment options have limitations. Rodent SUI models are often used to test new therapies for this condition. However, continence is rapidly restored in the rat due to its aggressive regenerative physiology, making it difficult to examine long term efficacy of the therapy being tested. Establish the most stable and persistent SUI model created by three established methods of inducing urethral injury - multiple vaginal distention (MVD), urethrolysis (U) and pubo-urethral ligament injury (PULI).

Methods: 150 female, postpartum, Sprague-Dawley rats were divided into three experiments according to post-surgical observation time: a) one-week, b) four-week, and c) eight-week experiments. In each experiment, rats were randomly divided into four groups: 1) control, 2) urethrolysis, 3) MVD, and 4) PULI. Leak point pressure (LPP) was used to determine persistence of SUI. In the one-week short-term experiment, LPP was measured three times (pre- and post-surgery and one week post-surgery) using the Crede method. In the four-week and eight-week experiments, terminal LPP was measured via Crede and vertical-tilt-table method.

Results: In the one-week experiment (n=52), the LPP was significantly decreased immediately (33.69±2.27 cm H2O) and 1 week post urethrolysis (39.34±2.08 cm H2O) when compared to pre-surgical measurements (50.40±1.99 cm H2O). The same decrease was observed in the MVD group, when comparing one-week post vaginal dilation (35.17±1.76 cm H2O) with matched pre-surgery control groups (49.39±4.44 cm H2O, p<0.05). In the four-week experiment (n=51), no difference was found between the control group and any of the surgically treated groups. In the eight-week experiment (n=47), LPP was significantly lower in the urethrolysis compared to control group using vertical tilt table method (28.26±1.11 vs 38.89±3.91 cm H2O, P<0.05). No difference was found in other groups when compared to controls.

Conclusion: Comparison of three established SUI models created by urethral injury (multiple vaginal distention, urethrolysis, pubo-urethral ligament injury) revealed that urethrolysis is the most stable and persistent SUI model eight weeks after surgery.

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Poster #BS11
SYNCHRONIZED ELECTROMYOGRAPHIC CHARACTERIZATION OF THE LOWER URINARY TRACT IN NORMAL RATS: EFFECTS OF INTRAVESICAL P2X3R INHIBITION
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Presented By: Alvaro Munoz

Introduction and Objectives: Efficient voiding require coordinated contraction of the detrusor, and relaxation of the external urethral sphincter (EUS), but determining simultaneous changes in bladder pressure (BP), and electromyographic (EMG) properties of the lower urinary tract (LUT) in rats is highly complex. Our objectives were 1) Evaluate microelectrodes for simultaneous EMG of the detrusor and EUS; 2) Characterize dynamic EMG activity of the LUT during voiding contractions (VC); and 3) Assess the effects on EMG after intravesical inhibition of purinergic P2X3 receptors (P2X3R).

Methods: Female SD rats were anesthetized with urethane, and implanted with a suprapubic catheter for saline infusion and drug delivery. Flexible spring microelectrodes (0.25mm ID) were attached by twisting them at the dome, upper, middle and neck regions of the bladder. A 0.1mm ID flexible microelectrode was secured on the EUS. Electrodes were connected to an Intan-Technologies amplifier board. Change in BP was determined during saline infusion (0.1 ml/min) and recorded at 60 Hz. EMG data were acquired at 5 kHz. Cystometric data were compared using t-test, while EMG data evaluated with ANOVA. P values <0.05 were considered statistically significant.

Results: Intravesical inhibition of P2X3R with 10 µM AF-353 decreased pressure threshold (p<0.05), while increasing the duration of intraluminal pressure high frequency oscillations (IPHFO, p<0.01) and the intercontractile interval (p<0.01). No effects of P2X3R inhibition were observed on the EMG frequency. The EMG amplitude was reduced by AF-353, but mainly at the dome (p<0.05 vs saline). The EMG parameters of the EUS were not affected by AF-353. At the beginning of the VC the EMG activity of the dome, upper and lower bladder was coordinated with the IPHFO, while activity at the bladder neck was synchronized with the EUS. At the end of the VC, EMG activity of the EUS preceded that from the four bladder electrodes (including the bladder neck). Activity of all five channels was synchronized when reaching the bladder peak pressure. These patterns were not affected by P2X3R inhibition.

Conclusion: Our system allows for simultaneous EMG recordings of the LUT during VC in rats, finding novel information about EMG patterns of the bladder neck, EUS, and bladder dome for efficient voids. Inhibition of P2X3R suggests that EMG activity of the EUS is independent of purinergic control.

Support: The Houston Methodist, the Cullen, and Brown Foundations
Poster #BS12
MICRORNAS AS POTENTIAL BIOMARKERS TO PREDICT RISK OF URINARY RETENTION FOLLOWING INTRADETRUSOR ONABOTULINUMTOXIN-A INJECTION
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Presented By: Christopher Chermansky

Introduction and Objectives: Recent research has highlighted the role of microRNAs (miRs) in the progression of chronic diseases, which represent a new level of epigenetic control of gene expression; however, the role miRs in overactive bladder (OAB) is unknown. We studied miR expression in OAB patients injected with intradetrusor onabotulinumtoxin-A (BoNT-A), and we compared patients who developed elevated post-void residual volumes (PVRs) >200ml to those who maintained normal PVRs.

Methods: 13 female OAB patients aged 45-80 (Mean 66.2) with urge urinary incontinence refractory to at least two anticholinergics were consented for this IRB-approved study, and the baseline PVR was 0-160 ml. Cystoscopic-guided punch bladder biopsy was obtained at the time of injection of 100U BoNT-A. The expression for 13 miR species known for their effect on neurotrophin expression and smooth muscle function was measured by qPCR and normalized to the expression of U6 small nuclear endogenous gene. PVRs were measured by ultrasound at the three week follow-up visit.

Results: Seven patients had PVRs < 200mL (Range 0 – 88mL, Mean 34.71mL) after BoNT-A treatment, and these patients comprised the low PVR group. The other 6 patients had PVRs > 200mL (Range 213 – 518mL, Mean 331mL) after BoNT-A treatment, and these patients formed the high PVR group. There were no age differences between the two groups. We noted differential expression of 5 miRs between the two groups, specifically miR26a, miR36b, miR125b, miR210 and miR221. The high PVR group showed a 2-fold upregulation of miR26a (p=0.06) together with a 2-fold downregulation of miR210, miR125b, and miR221. The high PVR group showed a 2-fold upregulation of miR26a (p=0.06) together with a 2-fold downregulation of miR210, miR125b, and miR221 (see picture).

Conclusion: The higher expression of miR-210, a neuroprotective mediator against ischemia, was associated with normal PVR after BoNT-A injection. Increased miR26a expression was associated with high PVR, and this increase could predispose OAB patients to an increased risk of urinary retention after BoNT-A. This study suggests that determining miR expression prior to BoNT-A treatment in OAB patients might help to determine which patients are at risk of developing urinary retention following therapy.

Funding: Urology Department University of Pittsburgh Internal Funds
IDENTIFICATION OF A DIVERSE FUNGAL COMMUNITY ("MYCOBIOME") IN THE NORMAL FEMALE HUMAN LOWER URINARY TRACT

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Presented By: A. Lenore Ackerman

Introduction and Objectives: Recent data suggest that the urinary tract normally hosts a bacterial community of varying composition in the absence of infection or inflammation. The fungal composition (mycobiome) of the bladder, however, is completely uncharacterized. Strong data exist in other diseases that the microbial communities on mucosal surfaces, which are normally in symbiosis with the host, change during pathologic states. As it is first necessary to understand the fungal composition of the bladder in the absence of disease to examine such changes, we sought to characterize the fungal species in the lower urinary tract in a sample of healthy women.

Methods: Catheterized urine samples obtained from 13 female subjects were centrifuged at high-speed to retrieve fungal organisms. Amplification of the fungal ITS1 from DNA (1 ng) extracted from resultant pellets was used to create sequencing libraries. Results of next generation sequencing (NGS) were compared to known sequences in several curated fungal sequence databases to identify species. The validity of this analysis was confirmed by PCR amplification of 26S ribosomal RNA for selected species.

Results: While nearby sites, such as skin and vagina, typically contain only 2-3 predominant fungal species, urine was significantly more diverse (Figure). As many as 20 individual species, belonging to a wide range of fungal taxa, including Saccharomyceales, Malasseziales, Pleosporales, Eurotiales, Hypocreales, and Capnodiales, were identified without a single predominant species. Candida albicans and tropicalis were commonly found, while Candida krusei, a pathogenic fungus, was not observed, demonstrating the species specificity of our analysis.

Conclusion: Our data from catheterized urine samples suggest the human female urinary tract harbors a unique cellular mycobiota, distinct from and potentially more diverse than that seen in surrounding organs. The identified fungi have a wide range of optimal culture conditions, suggesting these fungi may exist in isolated microenvironments within the bladder. The role of this rich fungal community in the development of bladder disease is unknown, but may contribute to lower urinary tract diseases, such as OAB and interstitial cystitis.
Poster #BS14
LACTOBACILLUS IN THE URINARY MICROBIOME OF WOMEN WITH STRESS INCONTINENCE
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Presented By: Bhumy Davé

Introduction and Objectives: Describe the bacterial community structure of urinary microbiomes in women with stress urinary incontinence (SUI) undergoing midurethral sling (MUS).

Methods: Catheterized urine was collected from 22 women with SUI prior to MUS. Bacterial community of each sample was analyzed using culture independent genomic analysis. After total DNA was isolated, the V4 region of the 16S rRNA encoding gene was amplified using specific oligonucleotides modified to encode for the sequences using Illumina’s sequence by synthesis technology (www.illumina.com). QIIME v1.9.1 was used to filter, assemble and align the sequences and identify the bacterial families. Based upon these results the microbiota of SUI patients were divided into two groups: Lactobacillacea lactobacillus (L. lactobacillus) dominant or varied. Mann-Whitney and An Analysis of Similarity (ANOSIM) analysis were used to identify community differences.

Results: 22 patients were included in the analysis (14 L. Lactobacillus dominant, 8 varied). Mean age was 47±11 years. Most participants were Caucasian (73%), premenopausal (82%), nonsmokers (86%), and thin (BMI 24±4). Bioinformatic analysis revealed that L. Lactobacillus dominance significantly differentiated (ANOSIM, p < 0.001, R = 0.569) the microbial community structure of the 22 patients (Figure 1). Differences did not correlate with any demographic variables or urinary symptom scores. Lactobacillus predominant communities displayed decreased number of species (observed OTUs), richness (Simpson) and evenness (Shannon) suggesting diminished community variance and increased stability within community structure. Abundance of Bifbacteriacae bacterial family members and Streptococcaceae Streptococcus were significantly greater in communities lacking L. Lactobacillus.

Conclusion: Urinary microbiota of women with SUI undergoing MUS can be separated into two distinct populations: L. lactobacillus dominant and those that are highly variable, lacking a dominant bacterial genera or family. Larger studies are required to determine if differences in the urinary microbiota can predict surgical outcome and identify targets and strategies for novel treatments.
Poster #BS15
A SINGLE INSTITUTION REVIEW OF PATIENTS WITH NEPHROGENIC ADENOMA
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Presented By: Yooni Yi

Introduction and Objectives: Nephrogenic adenoma (nephrogenic metaplasia) was first identified and described by Davis in 1949 as a “hamartoma” of the bladder. There have been multiple historic case reports and reviews studying the gross description, microscopic description and risk factors associated with nephrogenic adenoma (NA). There have been many theorized factors associated with NA including chronic inflammation, renal transplantation and gender. Multiple studies have found this lesion in association with bladder cancer hinting that it may be causative. We looked to establish a longitudinal database of patients with a pathologic diagnosis of NA to determine factors associated with the condition and to assess its association with malignancy.

Methods: A retrospective chart review was completed at our institution from the years 2002 to 2013 with the pathologic diagnosis of nephrogenic adenoma utilizing our pathology database. Suspected predisposing factors for NA based on literature review were abstracted from the chart along with other patient factors.

Results: In a cohort of 40 patients, 65%(26) were males, average BMI was 28.9, and average age at diagnosis was 58 with a smoking history seen in 57.5% of patients. The most common presenting symptom for evaluation was hematuria though lower urinary tract symptoms were also common. In evaluating pro-inflammatory factors, it was noted that 17.5% underwent either BCG or MMC, 30% had recurrent UTIs, and 30% had a history of catheterization. A history of bladder cancer was seen in 35% of patients with NA being found incidentally in six cystectomy cases, five of which were for cancer. Pathologic recurrence occurred only in three cases while clinical recurrence was seen in six. Concurrent cancer pathology was seen in 17.5% of patients with the initial diagnosis of NA. However there were zero cases of malignant transformation.

Conclusion: To the best of our knowledge, this is the largest retrospective review of patients with NA of the bladder identifying clinical factors that may be associated with this pathology. In conclusion, this study highlights the heterogeneity of the population with NA, however also emphasizes that NA did not progress to malignancy. The clinical significance of the diagnosis and risk factors is yet to be determined in further comparison studies.
LATE INTERMITTENT SACRAL NEUROSTIMULATION SIGNIFICANTLY INCREASES BLADDER CAPACITY

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Presented By: Bradley Potts

Introduction and Objectives: Sacral Neurostimulation (SNS) has been most commonly used as a continuous treatment for urge incontinence, but preclinical and clinical evidence suggest that discontinuous use may also be efficacious. We used our rat model to investigate whether continuous SNS is required for increasing bladder capacity or if intermittent application targeted to certain phases of a filling cycle (e.g. immediately post-void, timed to mid-cycle, or immediately preceding voids) can produce similar effects.

Methods: Urethane anesthetized female Sprague-Dawley rats (n=24) were implanted with jugular and transvesical bladder catheters. The L6/S1 nerve trunks were isolated bilaterally and two electrodes were placed on each exposed nerve. Electrodes were electrically insulated with parafilm and mineral oil. The wounds were closed with suture. Bladder catheters were connected to infusion pumps and pressure transducers. After continuous control cystometry (0.1 ml/min), and before every stimulation period, True Bladder Capacity (TBC) was determined with stable single-fill cystometrograms. In experimental series one, we applied SNS at the onset of bladder filling for 25%, 50%, 75%, and 100% of the previous control filling cycle duration (n=10). In series two, SNS was applied during the first, second, third, and fourth 25% and the first and second 50% of control fill times in random or pseudorandom (all 25% randomized, followed by 50% randomized) order. Data were analyzed using the Friedman Test and Dunn’s Multiple Comparisons Test.

Results: In series one, a significant increase in TBC was observed only when SNS was applied for 75% or 100% cycle duration (30 and 35%, resp., p<0.05). In series two, significant increases in TBC were seen during the fourth 25% and second 50% periods (32 and 43%, resp., p<0.001). No differences in randomization approaches were found. Pre-SNS baseline control values did not change in any systematic fashion in either series.

Conclusion: These data indicate that therapy timed to occur within the last 25-50% of the bladder fill cycle is critical for SNS effects for increasing bladder capacity. A clinical strategy taking advantage of this principle may improve battery life and reduce frequency of reoperation for battery replacement. The result also suggests important physiological differences among the different phases of bladder filling that should be explored.

Funding: Medtronic Inc., Minneapolis, Minnesota
Poster #BS17
BRAIN RESPONSES TO BLADDER FILING IN HEALTHY ADULTS: A META-ANALYSIS OF NEUROIMAGING STUDIES
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Presented By: Steven Weissbart

Introduction and Objectives: Storing urine is a complex physiological process that is under central nervous system control. Recent studies have identified brain regions that become active in response to bladder filling to allow for normal storage of urine. However, due to variation in study designs and subject characteristics, there is no strict consensus regarding which of these brain regions regulate the process of urine storage. Identifying the specific brain regions involved in normal urine storage could be critical to understanding the pathophysiological mechanisms for urinary incontinence and storage symptoms. The aim of this meta-analysis is to elucidate brain regions involved in urine storage in healthy adults.

Methods: PubMed was searched for neuroimaging studies investigating the effects of bladder filling on regional brain activation. Studies were excluded if they did not report differences in regional brain activity between the state of bladder filling and the state of bladder rest using whole-brain group analysis. An Activation Likelihood Estimation (ALE) meta-analysis was used to identify brain regions where activity increased in response to experimental bladder filling. Brain regions were identified using xyz coordinates in Talairach space.

Results: Of the queried studies, 12 studies examining brain activity during experimental bladder filling in healthy adults were included. These studies comprised data from 155 subjects and identified 92 foci of brain activations in response to bladder filling. The meta-analysis revealed significant activation in multiple brain regions including the right thalamus (4, -4, 10), left thalamus (-2, -6, 10), right insula (42, 5, 12), left insula (-42, 16, -6), periaqueductal gray (12, -22, -12), rostral pons (0, -22, -20), left cerebellum (-20, -74, -28) and anterior cingulate gyrus (8, 46, 2). Significantly reduced activation was noted in the lingual gyrus of the occipital lobe (6, -60, 4) and the superior temporal gyrus (-52, -22, 8).

Conclusion: Among the various studies investigating brain activity during bladder filling, several key anatomic brain regions could be identified by meta-analysis.
Poster #BS18
INOSINE ATTENUATES SPONTANEOUS AND EVOKED ACTIVITY IN NEUROGENIC BLADDER THROUGH AN ADENOSINE RECEPTOR-MEDIATED PATHWAY.
Claire Doyle, PhD¹; Yeun Goo Chung, MD, PhD¹; Mattias Schäfer, MD¹; Bryan Sack, MD¹; Kyle Costa, BSc²; Vivian Cristofaro, PhD³; Maryrose P Sullivan, PhD³; Rosalyn M Adam, PhD¹
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Presented By: Claire Doyle

Introduction and Objectives: Detrusor overactivity (DO) and the associated loss of bladder control are among the most challenging complications of spinal cord injury (SCI). Recent findings from our group showed that chronic administration of the purine nucleoside inosine significantly attenuates DO in SCI rats. Findings from other systems suggest that inosine acts via members of the adenosine receptor family as well as by facilitated diffusion into target cells. However, the involvement of these mechanisms in regulation of DO has not been explored. The objective of this study was to determine the underlying mechanisms by which inosine exerts its effects.

Methods: Adult male Sprague-Dawley rats underwent spinal cord transection at T8. At six weeks after SCI, bladder strips were subjected to isometric tension testing. Both spontaneous activity (SA) and the response to electrical field stimulation (EFS) were assessed before and after inosine and antagonists of adenosine receptors were administered exogenously in the organ bath.

Results: Inosine decreased the frequency and amplitude of SA (p<0.05) and EFS (p<0.001 at 32 Hz). The inhibition of both SA and EFS-induced contractility with inosine was reversed by the pan-adenosine receptor antagonist CGS15943 (5 µM) (p=0.030, n=6; EFS, p=0.042 at 16Hz). The ability of inosine to attenuate SA was also inhibited by the A2B receptor antagonist PSB603 (0.1 µM) (p=0.006, n=4) and the A2A receptor antagonist ZM241385 (100 µM) (p=0.0180, n=4). However, ZM241385 did not reverse the effect of inosine on the EFS response (p=0.715). PSB36 (0.1 µM, n=3) and MRS3777 (0.1 µM, n=3), inhibitors of A1 and A3 receptor subtypes, respectively, did not prevent the inhibitory effect of inosine on EFS. Similarly, blockade of facilitated diffusion using the ENT1 inhibitor NBMPR (10 µM, n=4) did not alter the effect of inosine on SA and EFS.

Conclusion: Inosine inhibits SA of bladder strips from SCI rats by activation of adenosine receptor subtypes A2A and A2B. Attenuation of evoked responses by inosine is mediated by activation of A2B.

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Poster #BS19
MODELING CATHETER FLOW RESISTANCE TO DETERMINE OPTIMAL SUPRAPUBIC TUBE DIMENSIONS
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Presented By: Calvin Lee, BSE

Introduction and Objectives: A number of different French (Fr) catheter sizes exist, with selection of catheters for use as suprapubic tubes (SPT) often per surgeon preference. A greater Fr size lowers resistance to urine flow through SPTs, but it is unclear whether the change in resistance is significant at larger catheter sizes. Thus, determining the effect of catheter size on flow is warranted. This project investigated flow resistance as SPT dimensions were varied in order to identify the catheter size at which the benefit to flow from increasing catheter size became marginal.

Methods: Latex Foley catheters (12-26 Fr) were used to drain a bladder model consisting of a plastic pouch. Passive drainage times were measured five times using 450mL tap water volumes for each catheter size. The catheters were shortened to half-length and the experiment repeated. The inner diameter of the drainage lumen was measured in each and a mathematical model for catheter resistance was created using the Hagen-Poiseuille equation for comparison. Data are presented as mean ± standard deviation or shown as mean with standard error bars with p<0.05 considered significant. No funding was utilized.

Results: Drainage times significantly (p<0.0001) decreased with increased catheter size and the associated larger inner diameters; however, no significant (p=0.349) difference in drainage time existed between 24 Fr (18.8±0.1s) and 26 Fr (17.03±0.3s) catheters. A 50% catheter length reduction also resulted in drainage times that significantly decreased (p<0.0001) with increasing Fr size. All catheter sizes at 50% length, except 16 Fr, had significantly faster drainage times compared to full length. Good agreement was noted between resistance calculated from drainage times and resistance modeled using drainage lumen inner diameter measurements (Figure). Marginal benefit to flow through a SPT from increased catheter size occurred at 18 Fr, with incremental increases from 18 Fr providing only a 19% (measured) or 11% (modeled) reduction in resistance.

Conclusion: Marginal improvement in flow with catheter upsizing occurs at 18 Fr with minimal benefit from larger catheters thereafter. Shortening catheter length also reduced resistance to flow.
MEDICAL STUDENT ROBOTIC SIMULATOR PERFORMANCE DOES NOT CORRELATE WITH THEIR USMLE SCORES
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Presented By: Megan Griffin

Introduction and Objectives: Studies have shown a correlation between visuospatial and surgical ability, as well as a between visuospatial ability and performance on the da Vinci Skills Simulator (Intuitive Surgical, CA). We aimed to detect a correlation between USMLE scores, and performance on the robotic simulator.

Methods: We enrolled 29 third and fourth year medical students naive to the robotic simulator during Ob/Gyn rotation. Twenty-two completed USMLE step one and two. Demographic data including age, gender, interest in a surgical specialty and intended medical field were collected. Students were asked to complete three exercises repeating each three times. Metrics were measured and a score for each repetition of each exercise calculated. Computer-generated feedback was recorded and revealed to the student between repetitions. An overall score calculated. The students’ medical school provided USMLE scores. The Pearson correlation coefficient was used to evaluate for correlations between USMLE and robotic simulator scores, and tested using the t-distribution. ANOVA and t-test were used to detect differences in scores among students interested in a surgical, non-surgical or an undecided discipline.

Results: Of the 22 students, 17 were male with an average age of 25 years. The mean step 1 and step 2 scores were 232.0±19.2 and 242.1±14.4 respectively. The mean overall robotic score was 74.3%±8.1. The USMLE scores did not correlate with the robotic score (r=0.02, -0.13 respectively). With repetition robotic scores improved on average 40% and was weakly associated with step 1 scores (r=0.12, p=0.54). The mean change from step 1 to step 2 was 10.2±10.7 and was not associated with the robot score. When categorized based on intended medical field the mean robot scores were 78.2%±7.6, 70.4%±10.2, and 72.8%±6.6 for a surgical, non-surgical, and undecided discipline, respectively (p=0.51). There was a trend towards significance between scores of those interested in a surgical discipline (mean=78.2%) vs. those interested in a non-surgical discipline (mean=70.4%, p=0.07). Students who intend a surgical field showed better economy of motion (157.8±24.2cm and 214.9±53.7cm, p=0.031) and performed the skills in less time (97.3±19.2s and 160.4±48.9s, p=0.013) than those who do not.

Conclusion: Performance on the simulator does not correlate with USMLE scores but improvement with repetition is weakly associated with USMLE scores. Students who intend a surgical field performed the da Vinci skills simulator exercises more quickly.
Poster #BS21
EFFECT OF HUMAN CHORIONIC GONADOTROPHIN ON IN VITRO CONTRACTIONS OF STIMULATED DETRUSOR MUSCLE STRIPS OF FEMALE RATS
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Presented By: Diaa Rizk

Introduction and Objectives: Lower urinary tract symptoms are common during pregnancy, increase with increasing gestation and decrease after delivery indicating that pregnancy may play a role. Since pregnancy is a time of human chorionic gonadotrophin [hCG] dominance, hCG may contribute to urinary bladder relaxation noted during pregnancy as similarly observed in blood vessels and myometrium. Pregnant rats lack circulating hCG but hCG receptors were identified in this species. To study the effects of hCG on the in vitro contractile response of the detrusor muscle of female rats induced by standard smooth muscle agonists and compare such effects with those of oxybutynin hydrochloride [OH].

Methods: Two adjacent longitudinal detrusor muscle strips from the bladder dome of 18 female Wistar rats (230-250gm) were mounted in organ bath for recording of isometric tension. Carbachol(10-9-10-3M), a,b methylene adenosine 5'-triphosphate [ATP] (10-9-10-3M) and potassium chloride [KCl] (10-4-10-3M) were applied (n=6×3 groups). Concentration-response curves, before and after addition of hCG (100 iu/ml) or OH (10-5M) to either muscle strip, were compared.

Results: All curves were displaced to the right by hCG in a concentration-dependent manner with significant inhibition of contractions induced by carbachol (p<0.001) and KCl (p=0.02). Estimated order of potency of inhibition was carbachol>KCl>a,b-methylene ATP. The overall inhibitory effect of hCG was significantly less than OH (p<0.001).

Conclusions: hCG significantly inhibited in vitro detrusor contractions induced by depolarization (KCl) and cholinergic (carbachol) but not purinergic (a,b-methylene ATP) stimulation in female rats. This is the first report of a potential relationship between hCG and urinary bladder contractility with clear in vitro detrusor-relaxant effects of hCG in female rats that provide basic scientific data for further evaluation.

Legend: Effects of different concentrations (arrows) of carbachol (a,b) and a,b methylene ATP (c,d) on active tensions of female rat detrusor muscle strips before (a,c) and after (b,d) addition of 100 iu/ml hCG. Note the greater relaxant effect of hCG on contractions induced by carbachol (b) than by a,b methylene ATP (d).
NON-STEROIDAL TISSUE-SELECTIVE ANDROGEN RECEPTOR MODULATORS (SARMS) INCREASE PELVIC FLOOR MUSCLE MASS IN FEMALE OVARIECTOMIZED MICE
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Presented By: Ramesh Narayanan

Introduction and Objectives: Urinary incontinence (UI) affects approximately 20 million women in the US and typically managed currently with physiotherapy, pelvic floor muscle exercise, and surgery. The pelvic floor is composed of striated muscles, which support the bladder, and weakened or damaged pelvic floor muscles are a major cause of the symptoms associated with UI. The anabolic actions of androgens are critical for muscle development and maintenance. Although the use of steroidal androgens has the potential to impact pelvic floor muscles in women, their use has been limited as a result of their lack of tissue selectivity as well as the virilizing side-effects. Tissue-selective molecules with androgenic activity, such as SARMs, might improve pelvic floor muscle mass and provide relief from UI and in particular those with stress urinary incontinence. To evaluate the tissue-specific effects of non-steroidal SARMs on pelvic floor muscles in ovariectomized female mice.

Methods: Six to eight week old female mice (n=6-8/group) were ovariectomized (OVX) or sham operated. One month after OVX, body composition was measured by MRI and treatment was initiated with vehicle or a dose range of two distinct SARMs (GTx-024 and GTx-027). Twenty eight days after treatment, body composition was again measured, animals were sacrificed, and pelvic floor muscle were weighed. Serum drug concentrations were measured by LC-MS/MS. Muscle sections were stained for collagen and elastin to evaluate the effect of SARMs on muscle architecture. The data were analyzed by one-way ANOVA followed by Tukey test.

Results: Ovariectomy significantly reduced the weight of the pelvic floor coccygeous muscle by 60%, illeococcygeous by 30% and the entire pelvic floor muscle mass by 50%. Administration of the SARMs returned the pelvic muscle to the mass observed in sham-operated animals. Catabolic genes such as myostatin and MuRF1 were inhibited in the animals receiving SARMs. The doses of SARMs used in the study did not result in a significant increase in body weight or whole lean mass.

Conclusion: In an ovariectomized model, novel SARMs increase pelvic floor muscle and may provide an approach for the treatment of UI.
INTRAVESICAL ADMINISTRATION OF ONABOTULIMUN TOXIN-A FOR A SHORT PERIOD OF TIME IMPROVES BLADDER FUNCTION IN RATS WITH SPINAL CORD INJURY

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Presented By: Alvaro Munoz

Introduction and Objectives: Chemodenervation of the urinary bladder with injections of onabotulinum toxin-A (BTX) is a common treatment for patients with detrusor overactivity. Therefore, finding new and more efficient methods for BTX application is a clinical priority. The objectives of this study were to 1) Determine whether the cleaved form of SNAP-25 (cSNAP-25) can be an indicator of BTX effects; and 2) Evaluate the cystometric (CMG) effects of a short-time intravesical application of BTX in rats with spinal cord injury (SCI).

Methods: Female SD rats had a complete SCI transection at the Th8/Th9 level, received antibiotics for a week, and manual voiding until a neurogenic bladder developed. After 28 days, rats were anesthetized with isoflurane and a transurethral catheter was inserted into the bladder for a 20 minutes application of either 1 ml of saline solution, or 20U of BTX diluted in 1 ml saline. Two days later, rats were anesthetized with urethane for CMG evaluation via a suprapubic catheter during saline infusion at 0.2ml/min. Thereafter, bladders were fixed with 4% paraformaldehyde to determine expression patterns of BTX (1:200) and cSNAP-25 (1:200). Images were acquired with a CCD camera, and analyzed with Nikon NIS. The CMG data were analyzed with t-tests with p<0.05 considered statistically significant. Values represent mean+/-SEM for groups of N=6.

Results: Immunohistochemistry indicated high levels of BTX reactivity in many detrusor fibers of the SCI rats treated with BTX. Additionally, immunoreactivity for cSNAP-25 was frequently observed in BTX-treated bladders, while smaller and less frequent regions were detected in saline infused bladders. We did not find differences for voided volume, pressure threshold or the maximal pressure between groups. However, the duration of the intraluminal pressure high frequency oscillations was reduced from 6.35+/−0.6s in saline-treated rats, to 3.94+/−0.5s in BTX infused rats. Similarly, the intercontractile interval decreased from 194.2+/−19.4s to 100.0+/−34.4s in the BTX group. Short-time application of BTX reduced the frequency of non-voiding contractions from 31.8+/-0.7 NVC/h in saline-treated rats to 17.9+/-4.8 NVC/h.

Conclusion: Our results suggest that 20 minutes application of 20 Units of BTX improve bladder function in SCI rats. Furthermore, the use of a cSNAP-25 antibody can be a suitable marker for BTX effectiveness.

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Poster #BS24
LOCALIZED INHIBITION OF P2X7R IMPROVES GAP43 SPREADING, LOCOMOTION, AND BLADDER FUNCTION IN SCI RATS
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Presented By: Alvaro Munoz

Introduction and Objectives: Correcting bladder dysfunction in patients with spinal cord injury (SCI) is a clinical priority. Rat studies of SCI suggest that systemic inhibition of purinergic P2X7 receptors (P2X7R) can be neuroprotective; however others found no restoration after reassessing this approach. Our objective was to determine if a SCI-localized inhibition of P2X7R improves bladder function.

Methods: We used a nanohydrogel (NHG) consisting of the P2X7R antagonist brilliant blue-G (BBG) embedded into silica nanoparticles, covered with 50% PLGA, and transferred into 35% pluronic acid, creating a thermosensitive gel that is liquid at 4°C, and semi-solid above 20°C. We performed a T8/T9 dorsal cord transection in female SD rats; after controlling bleeding we applied 100 micro-L of either an empty NHG, or a NHG containing 8.2 mg of BBG for release at a rate of 585 micro-g/rat/day. Rats were video-recorded to determine locomotion changes (BBB scale) over a period of four weeks. At this time, cystometry was performed via a suprapubic catheter in urethane anesthetized rats. Afterwards, rats were fixed with paraformaldehyde to determine spinal cord expression of Map2 (microtubule marker), GFAP (astrocyte), Cd11b (microglia), P2X7R (neuron/microglia) and GAP43 (axonal growth cone). Data were analyzed with ANOVA; values are mean+/− SEM. A P<0.05 was statistically significant.

Results: Rats receiving the NHG+BBG showed significantly faster locomotor recovery of the hind limbs in comparison to SCI rats with empty NHG or SCI by itself. Cystometric properties of BBG-treated rats were improved, specifically the frequency of non-voiding contractions associated with neurogenic detrusor overactivity. We observed P2X7R expression on resting and activated microglia located in both white and grey matter. The localized inhibition of P2X7R does not affect the number of activated microglia, but increases the dispersion of astrocytes into the SCI-gap, allowing for spreading of growing axonal cones in a bidirectional manner from the rostral and caudal regions of the SCI.

Conclusion: Results suggest that localized inhibition of P2X7R allows for axon regeneration, perhaps supported by astrocytes, when using a thermosensitive NHG containing a P2X7R antagonist. The increase in GAP43 spreading at the SCI-site may be important for improving hind limb movements as well as decreasing complications associated with a neurogenic bladder.

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Poster #BS25
NEUROPILIN 2 DELETION ENHANCES DETRUSOR CONTRACTILITY UNDER CONDITIONS OF BLADDER OUTLET OBSTRUCTION
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Presented By: Rosalyn Adam

Introduction and Objectives: Impairment of the strength or duration of bladder smooth muscle (SM) contraction characterizes a prevalent but poorly understood, clinical condition termed detrusor underactivity (DU). DU is a complex disorder that arises from diverse neuromuscular insults, including chronic bladder outlet obstruction, aging and persistent diabetes. DU reduces voiding efficiency and can lead to significant urologic complications. Despite significant morbidity, no effective treatment exists for this condition. Neuropilins (NRPs) are transmembrane receptors that bind distinct classes of ligands to regulate diverse biological processes including axon guidance and angiogenesis. We identified bladder SM as a major site of expression of Nrp2 in vivo, and showed that bladder SM strips from mice with genetic deletion of Nrp2 displayed increased contractility in organ bath studies compared to tissues from littermate controls, identifying Nrp2 as a negative regulator of SM contractility. In this study we tested the hypothesis that Nrp2 deletion in vivo improves bladder SM function under conditions of DU following partial bladder outlet obstruction (pBOO).

Methods: pBOO was created surgically in male mice at three months of age by urethral occlusion. We used SM22α-CreERT2:Nrp2fl/fl mice to achieve tamoxifen-inducible SM-specific Nrp2 knockout either before creation of pBOO or during the decompensation phase following pBOO. Nrp2-expressing mice (Nrp2fl/fl mice) were used as controls and sham surgery was performed to control for pBOO. Bladder SM contractility was assessed by isometric tension testing.

Results: Bladder weight increased in both Nrp2-intact and Nrp2-deleted mice with pBOO. Bladder SM from mice in which Nrp2 was deleted prior to pBOO displayed increased contractility at all time points after pBOO compared to tissues from Nrp2-intact mice. Bladder SM from mice in which Nrp2 was deleted during decompensation showed increased force of contraction compared to obstructed mice in which Nrp2 was not deleted (p<0.05).

Conclusion: These observations demonstrate that downregulation of Nrp2 by genetic deletion promotes increased bladder SM contractility under conditions of chronic bladder outlet obstruction. Importantly, they show that deletion of Nrp2 in mice that have already undergone bladder decompensation can restore SM contractile function, suggesting that Nrp2 may be a therapeutic target in conditions characterized by detrusor underactivity.
Poster #BS26

SELECTIVE PHARMACOLOGICAL INHIBITION OF PHOSPHODIESTERASE TYPE-1 AS A NOVEL APPROACH TO CONTROL HUMAN DETRUSOR SMOOTH MUSCLE FUNCTION

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Presented By: Georgi Petkov

Introduction and Objectives: Large conductance Ca2+-activated K+ (BK) channels are critical regulators of detrusor smooth muscle (DSM) function. We aimed to investigate phosphodiesterase type 1 (PDE1) interactions with BK channels in human DSM to determine the mechanism by which PDE1 regulates human urinary bladder function.

Methods: A combined electrophysiological, functional, and pharmacological approach was applied using human DSM specimens obtained from open bladder surgeries. The perforated whole cell patch-clamp technique was used to record transient BK currents (TBKCs) and the cell membrane potential in freshly-isolated human DSM cells in combination with the selective PDE1 inhibitor, 8-methoxymethyl-3-isobutyl-1-methylxanthine (8MM-IBMX). Isometric tension recordings were used to measure spontaneous phasic and electrical field stimulation (EFS)-induced contractions in human DSM isolated strips.

Results: Selective pharmacological inhibition of PDE1 with 8MM-IBMX (10 µM) increased TBKC activity in human DSM cells, which was abolished by subsequent inhibition of protein kinase A (PKA) with H-89 (10 µM). The stimulatory effect of 8MM-IBMX on TBKCs was reversed upon activation of muscarinic acetylcholine receptors with carbachol (1 µM). 8MM-IBMX (10 µM) hyperpolarized the DSM cell membrane potential, an effect blocked by PKA inhibition. 8MM-IBMX significantly decreased spontaneous phasic and nerve-evoked contractions of human DSM isolated strips.

Conclusion: The results reveal that pharmacological inhibition of PDE1 attenuates human DSM excitability and contractility by activating BK channels via a PKA-dependent mechanism. The data also suggest interactions between PDE1 and muscarinic signaling pathways in human DSM. Overall, our data provide mechanistic evidence that pharmacological inhibition of PDE1 can be a useful therapeutic approach for the treatment of overactive bladder (OAB) by attenuating DSM excitability and contractility. These investigations are an important step in validating PDE1 as a potential novel therapeutic target for OAB. We hope that this study will stimulate interest in the development of novel PDE1 inhibitors for OAB treatment.

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TRPV4 AND SK3 CHANNELS IN DETRUSOR PDGFRα+ CELLS CONTROL BLADDER FILLING
Haeyeong Lee, PhD; Byoung Koh, BS; Robert Corrigan, BS; Lauren Peri, BS; Brian Perrino, PhD; Toby Chai, MD; Kenton Sanders, PhD; Sang Koh, MD, PhD
Presented By: Haeyeong Lee

Introduction and Objectives: Recently we reported the functional expression of SK channels in detrusor PDGFRα+ cells. This cell does not display voltage-dependent Ca2+ channels. Finding the source of extracellular Ca2+ influx is critical for activation of SK channels. TRPV are relatively more Ca2+ permeable. In previous papers, TRPV4 KO mice demonstrated an increase in frequency of non-voiding contractions (NVCs). The mechanism of this phenotype has not been studied. Thus, we hypothesized that TRPV4 channels are main source of Ca2+ influx to activate SK channels during filling.

Methods: We applied molecular approaches, protein chemistry, patch clamp techniques, isometric force measurement, ex vivo cystometry, Ca2+ imaging techniques. PDGFRα/eGFP and C57BL/6 mice were used for cell sorting and patch clamp. Molecular expression of Trp channels and protein-protein interaction between TRPV4 and SK3 channels were examined. Effects of TRPV4 agonist and antagonist were also examined on PDGFRα+ cells and smooth muscle cells (SMC) using patch clamp approaches. Detrusor contractility, ex vivo cystometry and Ca2+ imaging analysis were employed for functional analysis.

Results: Quantitative analysis of transcripts demonstrated that Trpv4 is highly expressed in murine PDGFRα+ cells. In patch clamp experiments a TRPV4 channel agonist, GSK1016790A (GSK), activated TRPV4 current that was linked to activation of SK current. Under current-clamp, GSK induced membrane hyperpolarization of detrusor PDGFRα+ cells. GSK-activated SK currents were blocked by TRPV4 antagonists. Detrusor SMCs were unresponsive to GSK. In contractile experiments, GSK decreased phasic contractions in a dose-dependent manner. TRPV4 antagonist increased phasic contractions. In ex vivo cystometry, GSK increased non-voiding contractions in the presence of apamin. In contrast TRPV4 antagonist increased NVCs, and NVCs were also elevated significantly in bladders of Trpv4-/- mice. Proximity ligation assays demonstrated protein-protein interactions between TRPV4 and SK3 channels. GSK increased Ca2+ transients only in PDGFRα+ cells but not in SMC.

Conclusion: TRPV4 and SK channels are functionally interacted closely in plasma membrane of PDGFRα+ cells. Ca2+ influx through TRPV4 channels directly activates SK channels. Since TRPV4 are mechanosensitive channels, activation of TRPV4 during bladder filling stabilize membrane potentials and prevent detrusor overactivity.

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Poster #BS28
LOW AMPLITUDE RHYTHMIC CONTRACTIONS IN THE HUMAN DETRUSOR
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Presented By: Andrew Colhoun

Introduction and Objectives: Low amplitude rhythmic contractions (LARC) occur in mammalian detrusor smooth muscle (DSM) and may play a role in overactive or underactive bladder. Prior studies show that urothelial (U) strain in human tissue releases acetylcholine (Ach) and tissue strain in rabbit DSM increases LARC. We hypothesize that the influences of non-neuronal Ach and tissue strain during filling modulate LARC in the human detrusor.

Methods: Part I - Tissue strips of human DSM (hDSM) (n=4) were equilibrated at low tension (<2g). Carbachol (CCh) was titrated to generate LARC. Part II - In tissue strips with (U+, n=5) or without (U-, n=5) urothelium, spontaneous LARC was assessed and then neostigmine (Neo) was added to amplify non-neuronal Ach signalling. Tissues were stretched incrementally to determine strain effects on LARC. Atropine was added to inhibit Ach signalling. Fast Fourier transforms were used to identify LARC signal. Example tracings are shown in Figure 1.

Results: Part I - Spontaneous LARC was identified in 25% of hDSM strips. Titrated CCh induced LARC in the remaining 75% with a significant improvement in LARC signal:noise ratio (0.04 to 0.13, p=0.001). There was no association between concentration of CCh and LARC. Part II - In both U+ and U- tissues, Neo caused no change in LARC frequency or amplitude. When exposed to strain, 60% of U+ tissues exhibited a linear increase in both LARC frequency and amplitude (R²=0.68-0.97). Atropine had no effect on U+ LARC (p=1.0) but abolished LARC in U- (p<0.05) and significantly decreased actual to expected tension at 5 min post-exposure (p<0.05). Spontaneous LARC was not significantly different from LARC induced by CCh or Neo.

Conclusion: CCh induces LARC in quiescent hDSM that is similar to spontaneous LARC, suggesting that non-neuronal Ach may play a partial (but not exclusive) role in the regulation of spontaneous detrusor rhythm. In addition, tissue strain may increase LARC in a subset of U+ tissue, suggesting the possibility of a tension-mediated LARC generator. Elucidation of LARC generators may provide therapeutic targets for modulation of LARC and treatment of overactive or underactive bladder.
Sex Differences in Bladder Dysfunction in Response to Enteric Neuronal NFkB Overactivation and Experimentally Induced Colitis in Mice

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Presented By: Alan Braverman

Introduction and Objectives: In experimental models, animals with induced colitis demonstrate urinary bladder dysfunction. Nuclear factor kappa B (NFkB) is a major mediator of the inflammatory response in inflammatory bowel disease (IBD) and IBS. The aim was to determine the effect of increased NFkB signalling specifically in enteric neurons on bladder dysfunction with or without colitis.

Methods: Transgenic (TG) mice were generated with continuous NFkB activation in calretinin-expressing enteric neuronal cells. Mice were treated with 2.5% dextran sulfate sodium to induce colitis. High potassium (HK) and nerve mediated contractions induced by electric field stimulation (12 volts, 1 ms, 2-30 hz) before and after atropine and alpha, beta methylene ATP incubation were recorded to determine the purinergic and cholinergic components of nerve mediated (NM) contractions.

Results: The bladder contractile response to HK was similar between sexes in both wild type (WT) and TG mice. The NM contraction was greater in WT males than in WT females. In TG mice, the NM contraction was higher in males than in females as a percentage of the HK response. Bladder strips from WT female mice had a significantly greater purinergic component of NM contraction compared to WT male mice, but this was not found in TG mice. The cholinergic component of NM contraction was not different between male and female mice (WT or TG). Acute colitis significantly reduced HK and NM contractions in WT mice and TG female mice. Constitutive activation of neuronal NFkB preserved the contractile response (HK and NM) in male mice. Acute colitis increased the purinergic component of NM contractions in male WT mice only.

Conclusion: Significant sex related differences exist in the nerve mediated bladder contractile response. Constitutive activation of NFkB signalling in enteric (and perhaps bladder) neurons partially blocks the reduction in contraction of male but not female bladder strips induced by DSS treatment. This effect may be because DSS treatment in TG male mice significantly increases the purinergic component of nerve mediated contractions but not in females. Neurogenic inflammation in the bladder may cause a larger degree of bladder dysfunction in females because females have a greater purinergic component of nerve mediated bladder contraction which does not further increase due to colitis.

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Poster #BS30
IN VIVO INTEGRATION AND MECHANISM OF ACTION OF SMOOTH MUSCLE CELL PRECURSORS DERIVED FROM HUMAN PLURIPOTENT STEM CELLS
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Presented By: Bertha Chen

Introduction and Objectives: While stem cell (SC) therapy appears to restore urethral sphincter function in patients with stress urinary incontinence (SUI), the in vivo mechanism of action (MOA) of these SCs or their derivatives is unknown. Current SC therapies are derived from muscle or adipose tissue biopsies. These tissues are enriched for “SC-like” cells and re-injected into the patient’s urethra. Since this heterogeneous cell mixture contains mesenchymal SCs, precursor muscle cells (myoblasts) at various stages of differentiation and fibroblasts, it is difficult to study MOA of each cell type. Examine in vivo MOA of a pure and defined population of human precursor smooth muscle cells (pSMC) derived from human embryonic SCs (hESC).

Method: hESC are differentiated into SMCs with a defined protocol. Cells are purified for CD31+/CD34+ vascular progenitors by FACS. Purified cells are expanded in SMC growth medium. pSMCs are characterized by SMC markers, proliferation, contractility, and karyotype. Immuno-deficient RNU rat SUI models are generated by urethrolysis and ovariectomy. pSMCs (2x10⁶/rat) are injected peri-urethrally three weeks post-op. Rats are sacrificed at eight weeks post-op and tissues collected for histology and PCR. Elastin content is quantified with custom Image Pro macros with segmentation algorithms. SCID mice are injected with 1x10⁶ pSMCs and cell survival monitored with bioluminescence imaging (BLI).

Result: Differentiated pSMCs express SMC markers (myosin heavy-chain and elastin) and contract in a tonic fashion (carbachol induced) similar to human aorta SMCs. Histology comparison of rat urethra between intact control, sham (surgery+saline), and treatment (surgery+pSMC) groups show differences in elastin fiber pattern and content. Control urethra exhibits thin, long, organized elastin fibers while shams have short, scant fibers. Treatment rats show thick, abundant elastin fibers. Quantitative imaging confirms significant differences between groups. Elastin gene expression is decreased in the shams versus controls (p=0.03), while treatment restores elastin expression to that of controls. In vivo SMC proliferation and differentiation is observed at seven weeks with re-emergence of BLI signal and histologic staining of human SMCs.

Conclusion: Human pSMCs alter extracellular matrix metabolism by increasing elastin deposition after implantation. They also proliferate and terminally differentiate into SMCs in vivo.

Funded: CIRM ETA III106180-TR3-05569, PI-B Chen
Poster #BS31
CAVEOLAE-MEDIATED REGULATION OF ALPHA-1-ADRENOCEPTOR SUBTYPES IN OVERACTIVE BLADDERS FROM SPONTANEOUSLY HYPERTENSIVE RATS

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Presented By: Vivian Cristofaro

Introduction and Objectives: Although the etiology of detrusor overactivity (DO) is unclear, altered adrenergic mechanisms have been implicated in its pathogenesis. In bladder smooth muscle (BSM) from Spontaneously Hypertensive Rats (SHR, an animal model of DO), we previously showed a loss in caveolae, membrane domains that participate in regulating specific receptor-activated signaling events, including α1-AR mediated signaling. Here we investigated whether dysregulation of α1-AR activated pathways due to depleted caveolae might contribute to BSM hyperexcitability to adrenergic stimuli.

Methods: In BSM strips from SHR and control Wistar Kyoto Rats (WKY) contractile responses induced by phenylephrine (PE, α1-AR agonist), given alone or in the presence of either SNAP or BMY, (α1A- and α1D-AR antagonists respectively) were repeated before and after disruption of caveolae achieved by methyl-ß-cyclodextrin, as well as after caveolae restoration accomplished by cholesterol replenishment. α1A- and α1D-AR subtype expression was determined by western blot. The interaction between α1-ARs and caveolins (Cav), the constitutive proteins of caveolae, was investigated by immunoprecipitation.

Results: In WKY, PE induced weak contractile responses while in SHR bladders PE elicited potent contractions. α1A- and α1D-AR expression was comparable between strains. The administration of either SNAP or BMY decreased significantly PE responses in both strains. The depletion of caveolae in the presence of BMY increased significantly PE responses to α1A-AR activation in both WKY and SHR bladders, whereas caveolae reformation restored PE contractions to baseline. In contrast, in the presence of SNAP, neither the depletion nor the restoration of caveolae affected PE responses to α1D-AR activation in either WKY or SHR. α1A-AR co-precipitated with both Cav-1 and Cav-3.

Conclusion: Compared to WKY, the significantly higher PE responses in SHR, which were not caused by differences in receptor density, are consistent with a loss of α1-AR regulation due to reduced caveolae in SHR. The effect of caveolae depletion in increasing contractile responses to α1A-AR but not to α1D-AR activation, together with the molecular interaction of α1A-AR with caveolin proteins indicate that α1a-AR is the subtype negatively regulated by caveolae. Loss of membrane caveolae may contribute to DO by dysregulation of adrenergic signaling. Department of Veterans Affairs, Research Service (BX001790).
Poster #BS32
MESH WOVEN FROM PURE COLLAGEN THREADS FOR TREATMENT OF STRESS URINARY INCONTINENCE
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Presented By: Ahmad Khalifa

Introduction and Objectives: SUI (Stress urinary incontinence) is a major problem affecting 40% of women between 40 and 60 years. Sling operations are currently the gold standard of treatment for this condition. Our novel construct is a pure collagen mesh woven from high strength collagen threads. Our aim is to test the biocompatibility and tissue integration of this mesh in a rat model. Our mesh is made of electrocompacted collagen threads which are woven to form macroporous meshes that are then cross-linked in a 2% genipin solution.

Methods: Meshes were implanted suburethrally into (3) female Sprague Dawley rats with average wight 225-250 gm using the transvaginal technique (TVT). Time points: Two weeks, One month and Six months. Harvesting was done for the bladder, urethra, vagina and sling in-between. Histological evaluation for biocompatibility was done by senior pathologist.

Results: Meshes were mechanically robust enough to travel through the abdominal muscles during the procedure. Two weeks specimen: revealed excellent cellular infiltration, beginning of the healing response, focal chronic inflammation areas, neovascularization, tissue integration and granulation tissue deposition. No degradation was noticed. One month specimen: revealed no inflammation with more neovascularization and tissue integration and new collagen deposition. No degradation was noticed at this point as well. Six months specimen: revealed marked new collagen deposition with excellent tissue integration. Some degradation of the original material is noted. Both material and design are affecting the fate of biomaterial. Our mesh showed early biocompatibility in the form of tissue integration and neovascularization with additional host collagen formation at one month that increased at six months.

Conclusion: Our novel mesh showed excellent biocompatibility and early tissue response in the form of neovascularization and tissue deposition at two weeks with the addition of new collagen formation at one month that increased at six-month’s time point. These results are promising as they indicate potential for complete remodeling and recipient tissue replacement. More long-term histological and mechanical testing in animal models are needed to fully assess success of the mesh.
Poster #BS33
PRECURSOR OF SMOOTH MUSCLE CELLS DERIVED FROM HUMAN PLURIPOTENT STEM CELLS FOR TREATMENT OF STRESS URINARY INCONTINENCE
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Presented By: Bertha Chen

Introduction and Objectives: There is great interest in using stem cells (SC) to regenerate deficient urethral sphincters. Treatments for stress urinary incontinence (SUI) using autologous SC sources (muscle-derived, urine-derived and adipose-derived SC) show promising results. In these therapies, patients tissues are processed to enrich for “SC-like” cells. The resulting cell mixture for transplantation contains mesenchymal SCs, muscle precursors cells (myoblasts), muscle cells, and fibroblasts. All these cells possess senescence and epigenetic changes from the donor. Pluripotent stem cells (PSCs), such as human embryonic SCs (hESCs) and genetically reprogrammed induced pluripotent stem cells (iPSCs), are an attractive source of SCs because of their ability to self-renew indefinitely and to differentiate into all three germ layers. Additionally, somatic cells derived from PSC are thought to be devoid of senescence, suggesting improved properties for regenerative therapies. Investigate whether precursors of smooth muscle cells (pSMCs) derived from human PSCs can restore urethral function.

Method: SUI animal models are generated by urethrolysis and ovariectomy in immuno-deficient RNU rats. Rats are divided into: control (no intervention), sham saline (surgery+saline injection), bladder SMC (surgery+human bladder SMC injection) and treatment (surgery+pSMC injection) groups. pSMCs, which includes hESC-derived pSMC, episomal reprogrammed-iPSC-derived (Epi-iPSC) pSMC, or viral reprogrammed-iPSC-derived pSMC, are injected peri-urethrally (2×10⁶ cells/rat) three weeks after surgery. Leak point pressure (LPP) is measured 5 weeks post injection. Outcomes are analyzed by nonparametric comparisons.

Result: The SUI rat model demonstrates significantly lower LPP compared to intact controls eight weeks after surgery (P<0.05). LPP of the Epi-iPSC-pSMC treatment group (N= 9, mean=19.4 ± 1.33 cm) is significantly higher compared to sham saline (N=14, mean=14.16 ± 1.07 cm H2O, p=0.03). LPP of the iPSC-pSMC treatment group is also significantly increased (N=8, mean=18.45 ± 1.41 cm H2O, p=0.04). Comparison between hESC-pSMC treatment and sham saline groups shows a trend towards restoration of the LPP to that of intact controls.

Conclusion: pSMCs derived from human pluripotent stem cells can restore urethral LPP. These findings open the possibility of using autologous iPSCs for urologic conditions where smooth muscle cells are needed.

Funded: CIRM ETA III106180-TR3-05569, PI-B Chen
Poster #BS34
ADIPOSE DERIVED MESENCHYMAL STEM CELL CONDITIONED MEDIA: A POTENTIAL INNOVATIVE ANTIMICROBIAL THERAPEUTIC FOR RECURRENT UTI
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Presented By: Zhina Sadeghi

Introduction and Objectives: Human adult bone marrow-derived mesenchymal stem cells (MSC), and their conditioned media, have been shown to possess direct antimicrobial activity due to their secreted bioactive molecules that are anti-inflammatory and regenerative. We aim to study adipose derived stem cells (ADSC), and their conditioned media, as a novel option for treatment or pretreatment of recurrent UTI. As the first step, we investigated the antimicrobial effect of human ADSC conditioned media and compare it with human bone marrow derived MSC conditioned media as a potential therapeutic product in-vitro.

Methods: Stromal vascular fraction of adipose tissue was harvested from human lipoaspirate and transferred to DMEM-F12 media. After eight days, the cultured ADSC were characterized by flow cytometry. The ADSC were cultured under serum-antibiotic free media for 72 hours. Pseudomonas aeruginosa was cultured directly or with supernatant derived from ADSC (n=3 different donors). After 24 hours dilutions of the bacterial preparations were streaked onto TSA plates and incubated. Growth of the bacteria was determined by the numbers of counted colonies.

Results: Flow cytometry results of ADSC on day eight after cell culturing showed that CD29+, CD90+, CD45-, and CD271- cells were the predominant cell type with spindle-shaped morphological features. TSA plates incubated with ADSC conditioned media demonstrated significantly lower Pseudomonas colony counts compared against both control (P<0.001) and MSC conditioned media treated plates (P<0.05), similar to adult bone marrow derived MSCs.

Conclusion: Human ADSC conditioned media demonstrates direct antimicrobial activity. In future studies, we will evaluate the impact of human ADSC and its conditioned media on treatment or pretreatment of recurrent UTI.
Poster #BS35
BLADDER MUCOSA RESPONDS DIFFERENTLY THAN DETRUSOR SMOOTH MUSCLE TO DEPOLARIZING STIMULUS – A NEW BLADDER REFLEX?
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Presented By: Andrea Russo

Introduction and Objectives: The mucosal layer of the bladder modulates storage and emptying functions. Porcine mucosa has been demonstrated to contract, both spontaneously and to various agents. This study sought to examine the contractile responses of human and porcine bladder mucosa to KCl.

Methods: This study was funded by a SUFU’s Research Foundation grant for the Study of Chemodenervation for the Treatment of Adult Voiding Dysfunction. Mucosa was dissected from the underlying muscle in pig and human cystectomy specimens. Longitudinal strips of detrusor and mucosa were maintained in Krebs solution in an organ bath (at 37°C, gassed with 5% CO₂ and 95% O₂). Tissue was pre-tensioned for 1 hour to allow for equilibration. KCl (120 mM) was added to each sample, and maximum responses were calculated as percent change over baseline tension value. Western blot analysis was performed to determine the muscle content of mucosal dissections.

Results: A high percentage of porcine (n=33) (97%) and human (n=38)(71%) detrusor muscle strips contracted in response to KCl. There were significant percentages of mucosal strips that relaxed in response to KCl, 39% porcine (n=87) and 60% of human strips (n=40). There were no instances in which detrusor muscle relaxed in response to KCl, human or porcine. When comparing mucosal to muscle contraction, it was noted that muscle exhibited significantly greater contraction magnitude in response to KCl (human p=0.004, porcine p=0.001). Western blot analysis indicated that varying amounts of smooth muscle was present in all mucosal samples.

Conclusion: This study showed for the first time that sizeable proportions of both human and porcine bladder mucosa relaxed in response to KCl. We suggest that this relaxant effect represents a possible new bladder reflex and may play a role in functional disorders of the bladder. Further study of this response is warranted.
Introduction and Objectives: The bladder mucosa (urothelium, lamina propria, and muscularis mucosae) not only contracts, but also modulates detrusor (muscularis propria) contractility. The effect of OBTX (OBTX) on mucosa has not been studied. We hypothesized that OBTX can inhibit KCl induced contractions in different component bladder tissues from pigs and rats.

Methods: This study was funded by a SUFU’s Research Foundation grant for the Study of Chemodenervation for the Treatment of Adult Voiding Dysfunction. Porcine bladders were dissected into mucosa-only and de-mucosalized detrusor longitudinal strips. Rat bladders were dissected into full thickness and de-mucosalized detrusor longitudinal strips. These tissues were maintained in a Krebs solution (at 37°C and gassed with 5% CO2 in 95% O2). Tissues were incubated in OBTX (100 u/mL) or Krebs alone overnight. These tissues were then placed in an organ bath, pre-tensioned for equilibration for 1 hour, and then KCl (120 mM for pig tissues, 70 mM for rat tissues) was added to induce contractions. Maximum responses were calculated as % change over baseline tension value.

Results: Compared to no treatment, OBTX treatment decreased porcine de-mucosalized detrusor contractions by 54.2% (p=0.013); whereas it decreased porcine mucosa-only contractions by 28% (p=0.959). OBTX treatment decreased rat full thickness bladder contractions by 71.7% (p=0.003) and rat de-mucosalized detrusor contractions by 22.9% (p=0.478).

Conclusion: OBTX did not block the low force contractions in porcine mucosa-only strips. It did inhibit contractions in porcine de-mucosalized detrusor and full thickness rat bladder. Rat mucosa appears to be required for OBTX’s blocking effect. Limitations of this study were that we did not use consistent tissue types in the two species and we used a much higher concentration of OBTX than clinically used. The mucosa may be an important bladder compartment in mediating OBTX’s effects.
Poster #BS37
Succinate Modulates Bladder Contractility Via Prostaglandin E2 Secretion.
Monica Velasquez-Flores Bachelor; Philippe Cammisotto, PhD; Lysanne Campeau, MDCM, PhD, FRCSC
Lady Davis Institute for Medical Research
Presented By: Monica Velasquez Flores

Introduction and Objectives: Increased succinate production is detected in the presence of hyperglycemia and hypoxemia, as with diabetes mellitus and metabolic syndrome, which is strongly associated with overactive bladder syndrome. The aim of our study is to determine how succinate modulated bladder contractility.

Methods: Urothelial cells were isolated from rat bladder using a collagenase IV method and grown in coated petri dishes. After confluency, cells were exposed to a range of succinate concentrations then assessed for microscopy and immunoblotting analysis.

Results: Cells express the receptor of succinate SUCNR1 (GPR91) as revealed by immunohistochemistry and immunoblotting. Incubation of cells with succinate (10-2 M) results in phosphorylation of Erk and c-Jun amino-terminal kinases (JNKs) JNK, with no effect on Akt-308P or Akt 473P. On the other hand, succinate dose-dependently (10-5 to 10-2 M) increased the secretion of prostaglandin E2 (PGE2). Interestingly, carbachol (1 microM) stimulates PGE2 secretion and activates Erk, which are both inhibited by very low levels (10-9 to 10-6 M) of succinate.

Conclusion: A functional succinate receptor is expressed in urothelial cells. Succinate triggers activation of Erk and Jnk, and increases release of PGE2 at high concentrations. Conversely, succinate prevents the contractile effect of carbachol, by inhibiting PGE2 and Erk. These results suggest that succinate may be a major regulator of bladder contractility through its actions on urothelial cell signaling.

Funded: Fonds de Recherche du Quebec en sante
Introducion and Objectives: Knowledge of the innervation of pelvic floor and sphincter muscles is of great importance to the pathophysiology of pelvic floor dysfunctions. However current innervation zone mapping methods are limited. A comprehensive innervation zone (IZ) mapping technique was developed in this study to characterize the distributions of IZs of both the pelvic floor muscles and anal sphincter at different depths, from high-density surface electromyography (EMG) recordings using our newly developed intra-vaginal and intra-rectal surface EMG probes.

Methods: The intra-vaginal and intra-rectal probes were mounted with a high-density (eight-by-eight) surface EMG electrode grid (Figure 1a). Surface EMG signals were acquired using the probes in 10 healthy female subjects, during their maximum voluntary contractions of the pelvic floor (Figure 1b). EMG decomposition using the K-means clustering and convolution kernel compensation (KmCKC) approach was performed on the acquired high-density surface EMG signals to separate the motor unit action potentials and localize their innervation zones.

Results: High density surface EMG signals were successfully acquired over the intravaginal and intrarectal surfaces. The propagation patterns of muscle activity along muscle fiber direction were clearly visualized for multiple muscle groups for the pelvic floor and anal sphincter. Up to 218 repetitions of vaginal motor units and 456 repetitions of rectal motor units were detected during each contraction. Motor unit action potentials were separated with their IZs identified at various orientations and depths. Figure 1c shows an example of two MUs separated from the intrarectal probe signals. The IZ location was marked by the red rectangles. Compared with vaginal signals, the anorectal muscle fibers encompassed the lumen more completely (Figure 1d).

Conclusion: The novel EMG probes are capable of providing comprehensive neuromuscular functional mapping of the pelvic floor and sphincter muscles. They can be employed as diagnostic and preventative tools in clinical practice as well as instruments to understand pelvic muscle crosstalk and synergy.

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***2016 Clinical Science Prize Essay Award Winner: Yun Peng, MSc
IC/Pelvic Pain/ Geriatrics/ BPH – Podium Session
Thursday, February 25, 2016
1:00 p.m. – 2:20 p.m.
Moderators: Cristiano Gomes, MD
Christopher K. Payne, MD

Podium #1
CONFIRMATION OF TRANSVAGINAL PELVIC FLOOR MUSCLE INJECTION TEMPLATE: A CADAVER STUDY
Priyanka Gupta, MD¹; Michael Ehlert, MD²; Larry T. Sirls, MD¹; Kenneth M. Peters, MD¹
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Presented By: Priyanka Gupta

Introduction and Objectives: Women with pelvic floor dysfunction may present with tender areas on vaginal examination, which can be treated with pelvic floor muscle injection. There are no publications on the accuracy of drug delivery, location of fluid injected or fluid dispersion after injection.

Methods: Our standard pelvic floor muscle injection template is two sets of injections passing through the vaginal wall into the pelvic floor muscles at the 1, 3, and 5 o’clock positions, a proximal set at the level of the ischial spine, and a distal set immediately behind the pubic bone (Figure 1). We use a curved nasal cannula guide and seven-inch spinal needle. The efficacy and accuracy of this template was evaluated on two fresh cadavers. Each injection site used different colored pathology dye diluted in two cc of saline. At 1 o’clock distally the needle was advanced one cm beyond the end of the cannula guide and at all other positions advanced two cm. The first pelvis was dissected to examine dye location and penetration. Based on these results we modified our technique and repeated injections on the second cadaver. We dissected the second pelvis and compared our findings.

Results: The one o’clock proximal and distal injections stained the obturator internus and externus near the insertion at the ischiopubic ramus. The 3 o’clock injections stained the pubococcygeus and puborectalis. The distal 5 o’clock position was too deep and stained the fat of the ischiorectal space, while the proximal 5 o’clock injection was near the ischial spine and stained the area of the pudendal nerve. Our goal at the distal 5 o’clock position was to infuse the iliococcygeus muscle, so for the second pelvis we shortened the needle depth from two cm to one cm beyond the cannula tip. In our second dissection the distal 5 o’clock injection remained entirely in the fat of the ischiorectal space.

Conclusion: Our transvaginal injection template delivers medication to the proximal and distal obturator internus, externus, levator ani muscles and the pudendal nerve. We could not reliably inject the levator muscles at the distal 5 o’clock site even after modifications. This is the first study to locate distribution of pelvic floor muscle injections in a cadaver model.
Podium #2

**MYOFASCIAL TRIGGER POINT DRY NEEDLING FOR PELVIC PAIN AND URINARY SYMPTOMS: AN INITIAL SINGLE CENTER EXPERIENCE**

Matthew Nielsen, MD¹, Erin Glace, MSPT/PRPC² and Kurt McCammon, MD¹

¹EVMS, Norfolk, VA; ²Urology of Virginia, Virginia Beach, VA

Presented By: Matthew Nielsen

**Introduction and Objectives:** Myofascial trigger point dry needling (DN) is a described technique used to alleviate musculoskeletal pain in various parts of the body. To our knowledge, there is no literature to assess use of DN in pelvic pain patients. The object was to assess effectiveness of DN in female patients presenting for physical therapy for pelvic pain.

**Methods:** IRB approval was obtained from Easter Virginia Medical School. No funding was provided for the project. A retrospective chart review was performed on female patients presenting with an associated procedure code of 97140: Manual Therapy from December, 2013 to June, 2014. Chart review elucidated which patients received DN. Multi-modal therapy included varying use of the following: external manual therapy, home exercises, electromyography biofeedback, internal manual therapy (DN and manual massage), transcutaneous electrical nerve stimulation, and moist heat delivery. Data collected on patients receiving DN included age, pain assessment, length of symptoms, bowel habits, urinary complaints, and number of DN treatments. Degree of subjective improvement was then assessed.

**Results:** 20 patients underwent DN. Average age was 40.1 years (range 25-68 years). Chief complaint was pelvic pain in all patients. Urinary complaints included frequency 75%, 30% nocturia, 35% dysuria, 10% urge urinary incontinence, 15% stress urinary incontinence, 15% history of recurrent urinary tract infections, 10% hesitancy, and no urinary complaints in 10%. Average length of symptoms was 36.9 months (range 12-60 months). All patients reported pelvic pain, 75% reported dyspareunia. Average daily pain was 2.1 on a scale of 1 to 10 (range 0-8). Mean best day pain was 2.1 (range 0-5). Worst day pain average was 8.1 (range 5-10). The mean number of DN treatments was 6 (range 1-22 treatments). All patients (100%) reported subjective improvement following DN. Mean degree of improvement was 2.3 with a scale of 0 for no improvement, 1 for mild improvement, 2 for moderate improvement and 3 for significant improvement. Mild improvement was reported in 20%, moderate improvement in 30%, and significant improvement in 50%. Average follow up following DN therapy was 11.9 months.

**Conclusion:** DN appears to be an affective adjuvant therapy in a multi-modal treatment strategy for female patients with pelvic pain with and without associated urinary complaints. Further studies are required to confirm these promising results.
Introduction and Objectives: To study the response of uropathogenic bacterial strains known to produce biofilm to Ultra-violet (UV) light exposure in vitro.

Methods: Established uropathogenic Escherichia coli strains, UTI89 and CFT073, and Pseudomonas aeruginosa strains, PA01 and Boston-41501, were studied to establish duration of exposure (1 to 10 minutes) to UV light in the germicidal range (265 nm wavelength) for maximum efficacy. All bacterial strains were cultured in Lysogeny broth (LB) for 16-18h in 37°C with vigorous shaking (250 rpm). Cultured bacteria were then diluted into O.D = 0.67 under 600nm. For consistency, 1×10^6 bacterial/ml bacterial suspension was prepared, and equal amount of bacteria was spotted on sterile petri dish then treated with or without UV light (light was placed 2 cm above the well or solution) for the indicated time. Treated cells were further diluted to reach the appropriate concentration for mixing with 0.8% soft agar, then poured onto 1.5% bottom agar plates. After 37°C incubation overnight, bacterial colony numbers were counted (Colony doc). In addition, the effect of UV light on biofilm production made by Pseudomonas strains was also tested. Biofilm formation (BF) was measured using crystal violet staining at OD 555 nm. All experiments were performed in triplicates and data were normalized with non-treatment control.

Results: Following UV light exposure, an early response was noted at one minute but the maximum effect was observed by 5 minutes (> 95% bacterial death) (Table 1). This effect happened consistently across all strains (data not shown). For Pseudomonas biofilm production, no effect was observed with either strains at five minutes or longer exposure time.

Conclusion: UV light has efficacy against potent uropathogenic bacterial strains in vitro, but no effect on biofilm production. The role of UV light could apply to the management of recurrent urinary tract infections.

Acknowledgement: Lacy Gallaway for providing UV light.
Podium #4
SAFETY AND PERFORMANCE OF A WIRELESS IMPLANTABLE TIBIAL NERVE STIMULATOR DEVICE, FOR THE TREATMENT OF PATIENTS WITH OVERACTIVE BLADDER (OAB)
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Presented By: John Heesakkers

Introduction and Objectives: Overactive bladder (OAB) affects millions of people worldwide with neuromodulation offering a minimally invasive and reversible treatment option for patients who have failed first-line therapy. Multiple neuroanatomical pathways have been described for neuromodulation including the S3 nerve root, pudendal nerve and tibial nerve (1), with limited and ancient preliminary publications on implantable tibial nerve stimulators (2, 3). A novel peripheral neurostimulator device (BlueWind Medical Ltd.) for the treatment of OAB was developed; the implantable device electrically stimulates the tibial nerve at the site just proximally of the medial malleolus. The assumed working mechanism is that it modulates the neuronal signals to the bladder, urinary sphincter and the pelvic floor in an afferent mode. The implant is wirelessly powered by an external control unit (ECU) that controls the therapeutic parameters and is worn by the patient during treatment at home. A Physician Programmer is used to remotely set individual stimulation parameters for each patient to optimize therapeutic outcome (Figure 1). Herewith, the safety and performance of the newly developed implantable peripheral neurostimulator device, intended for home care use, is being observed for the treatment of patients with OAB.

Methods: In a prospective, multi-centered study, patients are followed for a period of 6 months post system activation. Two patient populations were enrolled in the study: patients with no previous treatment with percutaneous tibial nerve stimulation (n=20) and patients who have been previously treated with percutaneous tibial nerve stimulation (n=16). In a minimally invasive procedure of about 30 minutes, the implant was secured close to the tibial neurovascular bundle approximately 5 cm proximally to the medial malleolus (Figure 2). The endpoints of the study were to determine incidence of serious adverse events and to assess the improvement in OAB symptoms at 6 months post activation as compared to baseline. Data is being collected via voiding diaries, quality of life questionnaire (OAB-q), and recording of adverse events.

Results: To date, 36 subjects have been enrolled and implanted and eight patients have been followed through their 3-6 months visit. By February 2016, all implanted patients are expected to reach their 3-6 months follow-up visit. Final results will be report upon study completion.

Conclusion: This first in man, human feasibility trial conducted with a newly developed implantable tibial nerve stimulator will provide important information on the potential of this novel treatment technique.

Support: BlueWind Medical Ltd.
MINIMALLY INVASIVE PROSTATIC URETHRAL LIFT (PUL) EFFICACIOUS IN A LARGE PERCENTAGE OF POTENTIAL TURP CANDIDATES: MID-TERM RESULTS

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Presented By: Karl-Dietrich Sievert

Introduction and Objectives: Outcomes following prosthetic urethral lift implants (UroLift®) (PUL) have been reported in a number of clinical trials. This investigation is unique because it follows the mid-term results in patients of five German centers who were treated in a normal clinical setting outside of clinical trial limitations. Previously reported studies rigorously selected subjects with mild-to-moderate obstruction. We report the prospective outcomes of patients treated by PUL in lieu of TURP after education concerning the less invasive therapy. The only exclusion criteria were an obstructive median lobe or high entrance into the bladder.

Methods: All patients were candidates for TURP were informed about PUL and given the choice of the two therapeutic options. No patients were refused PUL because of high post void residual (PVR) (7 pat. with PVR≥250ml), prostate volume (PV: 17-111ml (43±18.8)). Seventy patients decided to undergo PUL and were followed for 0.5-18 (9.05± 5.55) months (n= 63/68) post-operative. Prior to and after surgery, patients were evaluated using Qmax, PVR, IPSS, and QoL. Patient age was 38-85 (66 ±10.5) years; PV of 17-111 (43±18.8)ml. Unlike all previously reported papers, PUL candidates were not excluded for oral LUTS therapy, high PVR, PV or history of urinary retention.

Results: A total of 2-7 (3.9±1.4) implants were delivered over 42-90m (57.0±12.0) under general or local anesthesia. 37% of our more severely obstructed patients would have been denied PUL utilizing previously reported study criteria. 95.7% reported immediate symptom relief; mean Qmax, PVR, IPSS, and QoL significantly improved (p<0.001) within the first month and either remained unchanged or improved for up to 18 months. Sexual function including ejaculation was unchanged or even improved of those who reported sexual activity prior to surgery. Negligible adverse events were documented. Unsatisfactory improvement in three (4%) patients: two underwent TURP; one successfully underwent a repeat PUL.

Conclusion: PUL is a new and promising surgical technique which may alleviate symptomatic BPH, even in severely obstructed patients. It is an easy surgical technique and has been efficacious in candidates who would have undergone, until now, TURP or another equivalent therapy, thereby demonstrating higher levels of obstruction or previous urinary retention. Within the follow-up, these patients demonstrated a similar outcome to those in published studies.
Introduction and Objectives: Bladder outlet obstruction, a common problem in older men, is often treated by transurethral resection/incision of the prostate (TURP/TUIP) to avoid the need for an indwelling foley catheter. However, older men with functional impairment who reside in nursing homes may receive little benefit from this surgery. The objective of this study is to determine whether poor functional status is associated with TURP/TUIP failure, as measured by the presence of a foley catheter one-year post surgery.

Methods: Using inpatient Medicare claims and the Minimum Data Set (MDS) for Nursing Homes, we identified all male nursing home residents who underwent inpatient TURP/TUIP from 2005 to 2009. We examined changes in activities of daily living (ADL) up to 12 months post-surgery and factors associated with operative failure. The primary outcome of interest was surgical failure, measured by the presence of an indwelling Foley catheter one year after surgery.

Results: We identified 2,869 men residing in nursing homes who underwent TURP/TUIP during the study period. Over half of the cohort (59%) had a Foley catheter before the procedure. One year after the procedure, 31% had a foley, 38% had no Foley, and 31% had died. In regression analysis, the presence of a foley catheter at baseline (RR 1.37; p<0.0001), ADL decline before the procedure (RR 1.10; p=0.02), worse baseline ADL score (RR 1.34; p<0.0001), and hospitalizations in the year prior to surgery (RR 1.24; p=0.005) were associated with an increased risk of surgical failure among one-year survivors. Older age and high Charlson comorbidity score were not associated with a significant increased risk of TURP/TUIP failure. The figure below demonstrates the positive association between higher baseline ADL score and operative failure.

Conclusion: Poor baseline physical function is associated with an increased risk of TURP/TUIP failure, as measured by the presence of a foley catheter 1-year post procedure. Preoperative measurement of ADLs may aid in surgical decision-making by identifying patients in whom TURP/TUIP is unlikely to be of benefit.

Funded: K12DK83021-07 (NIDDK), R03AG050872-01 (NIA)
Podium #7
THE IMPACT OF BODY COMPOSITION AND MUSCLE FUNCTION ON URINARY INCONTINENCE IN OLDER WOMEN: RESULTS FROM THE HEALTH, AGING AND BODY COMPOSITION STUDY
Anne M Suskind, MD, MS; Peggy Cawthon; Sanae Nakagawa; Leslee Subak; Ilse Reinders; Suzanne Satterfield; Steve Cummings; Alison Huang; Health ABC
UCSF Department of Urology
Presented By: Anne Suskind

Introduction and Objectives: Epidemiologic studies indicate that elevated body mass index (BMI) is an independent risk factor for urinary incontinence in young and middle age women, however, little is known about the role of BMI and other body composition and functional factors in the development of urinary incontinence in older women. The objective of this study was to evaluate the association between body composition and function with worsening and persistent stress and urgency urinary incontinence (SUI/UUI) in older women.

Methods: This is a secondary analysis of women from a longitudinal cohort study designed to investigate the effects of changes in body composition and function in healthy older adults. We included all women with baseline (Y1) and year four (Y4) data on BMI, appendicular lean body mass (ALM) and body fat mass measured via DEXA, grip strength, and walking speed. Logistic regression was performed using both baseline (Y1) and changes in variables (Y1 to Y4) to predict worsening or persistent SUI and UUI.

Results: Out of 1030 women, there were 212 and 233 women with SUI and UUI, respectively. Women with SUI and UUI had an average age of 73 and 74 years. 30% and 23% of women with SUI and UUI leaked daily. Worsening or persistent SUI was associated with decreased grip strength from Y1 to Y4 (adjusted OR 1.95; p=<0.01) while improvements in SUI were associated with a decrease in BMI from Y1 to Y4 (adjusted OR 0.47; p =0.02), an increase in ALM adjusted for BMI from Y1 to Y4 (adjusted OR 0.19; p=0.01), and a decrease in fat mass from Y1 to Y4 (adjusted OR 0.55; p=0.01). Worsening or persistent UUI was associated with higher baseline BMI (adjusted OR 1.04 (p<0.01), baseline ALM (adjusted OR 1.07; p=0.01) and baseline fat mass (adjusted OR 1.02; p=0.02), while higher baseline grip strength adjusted for BMI and walking speed were protective against worsening or persistent UUI (adjusted OR 0.53; p=0.01 and adjusted OR 0.48; p=0.04, respectively). An increase in walking speed between Y1 and Y4 was the only change variable associated with a significant increased odds of worsening or persistent UUI (adjusted OR 1.51; p=0.04).

Conclusion: Changes in body composition and function were associated with changes in SUI, while baseline factors, and not changes in these factors, were associated with changes in UUI. These findings suggest that SUI, unlike UUI, can be mitigated with lifestyle changes affecting body composition in older women.
ONABOTULINUMTOXINA THERAPY FOR MANAGEMENT OF OVERACTIVE BLADDER IN ELDERLY POPULATIONS: EVALUATION OF OUTCOMES AND ADVERSE EVENTS
Neha Talreja, MD¹; Ekene Enemchukwu, MD²; Victor Nitti, MD²
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Presented By: Neha Talreja

Introduction and Objectives: The elderly are disproportionately affected by overactive bladder (OAB) and urgency incontinence. Over 50% of patients discontinue anticholinergic medications in the first year due to inadequate efficacy or side effects, and studies suggest a link between long-term use and elderly dementia. Intradetrusor OnabotulinumtoxinA (BTX-A) is an effective third line therapy for OAB, and may be safer in elderly due to low risk of systemic effects. However, data is limited on outcomes and adverse events, particularly incomplete bladder emptying in elderly. We sought to assess outcomes and adverse events in the elderly.

Methods: A retrospective chart review of patients receiving 100 units of BTX-A for OAB from 2010 to 2014 was performed. Elderly was defined as ≥ 65 and >75. Demographics, subjective outcomes and adverse events were collected. Patient reported symptom resolution or >50% improvement were considered positive results. Adverse events of interest were incomplete emptying requiring clean intermittent catheterization (CIC) and UTI. CIC was initiated for PVR <350 ml with symptoms or >350mL +/- symptoms. UTI was defined as a symptomatic, culture-proven infection requiring treatment.

Results: 113 patients were included; 90 were elderly with majority being ≥75 (n=55). The population was 97% Caucasian and most were women (p=0.46). Diabetes was more common in the elderly (p < 0.01). There were no significant differences in outcomes or UTI rates between groups. Post treatment PVR was higher in the ≥ 65 group (p=0.05). No cases of incomplete emptying requiring CIC in the <65 group were reported versus 15 in the elderly (p=0.03). A subset analysis of patients’ ≥75 was performed; no significant differences in the reported results were identified when compared to elderly patients 65-74 or the younger patients < 65.

Conclusion: BTX-A is safe and effective in the elderly. Elderly comprised a majority of treated patients. We observed higher risk of incomplete emptying requiring CIC. Symptomatic UTI rates were significantly lower than bacteruria rates reported in the literature. Prospective studies are needed to further evaluate outcomes and rates of adverse events in this growing population.
Poster #M1  
PATIENT PERCEPTION OF URINARY TRACT INFECTION IS ASSOCIATED WITH DECREASED URINARY MICROBIAL DIVERSITY  
Travis Price, MS¹; Evann Hilt, MS¹; Tanaka Dune, MD²; Elizabeth Mueller, MD, MS²; Cynthia Brincat, MD, PhD²; Linda Brubaker, MD, MS²; Alan Wolfe, PhD¹; Paul Schreckenberger, PhD³  
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Presented By: Travis Price  

Introduction and Objectives: To determine the relationship of patient reported urinary tract infection (UTI) symptoms and the female urinary microbiota.  
Methods: After institutional review board approval, we prospectively enrolled 115 urogynecologic patients and dichotomized the group based on their UTI perception, using a Y/N response to “Do you feel you have a UTI?” In addition to a standard clinical urine culture of the catheterized urine specimens, bacterial growth was assessed using an expanded quantitative urine culture (EQUC) protocol, which uses different media, an expansion of environmental culturing conditions, and increased amount of urine plated as compared to standard culture practice. Bacterial growth detected with EQUC was identified using Matrix Assisted Laser Desorption/Ionization - Time of Flight Mass Spectrometry (MALDI-TOF MS). Microbiota diversity was assessed using the average number of unique species per urine specimen. Women were treated clinically, based on results from the clinical standard urine culture alone.  
Results: “YES” participants (N=40) did not differ demographically from the “NO” women (N=75) except the “YES” cohort was slightly older than the “NO” cohort [63.6 (±16.1) versus 60.8 (±12.6), p=0.04]. The YES cohort had less diversity than those in the NO cohort (Median: 2 versus 3). The NO cohort urines were dominated by the genera Lactobacillus, Gardnerella, Streptococcus, and Corynebacterium as assessed by EQUC; one species, Streptococcus parasanguinis, was statistically associated with the NO cohort (11%; p=0.032). In contrast, the YES cohort contained more Escherichia and Klebsiella (Fig. 1).  
Conclusion: Beyond the presence of known uropathogens, the diversity of the female urinary microbiota differs based on patient perception of UTI. These findings suggest that some communities of bacteria may be involved in maintaining a healthy urinary environment (i.e., proper diversity) and UTI may be more than the mere presence of a known uropathogen; it also may represent deficiency in a resident protective bacterial community.
**Poster #M2**  
**DETECTING CLINICALLY RELEVANT MICROORGANISMS: WE CAN DO BETTER**  
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Presented By: Travis Price

**Introduction and Objectives:** To compare the standard urine culture to an improved urine culture protocol for detection of clinically relevant microorganisms.  

**Methods:** After institutional review board approval, we prospectively enrolled 115 urogynecologic patients and dichotomized the group based on their UTI perception, using a Y/N response to “Do you feel you have a UTI?” In addition to a standard clinical urine culture of the catheterized urine specimens, bacterial growth was assessed using 3 versions of an expanded quantitative urine culture (EQUC) protocol, which uses different media, an expansion of environmental culturing conditions, and 3 volumes of urine plated (1μL, 10μL and 100μL) instead of the 1μL used in standard culture practice (Table 1). Bacterial growth detected with EQUC was identified using Matrix Assisted Laser Desorption/Ionization - Time of Flight Mass Spectroscopy. Microbiota diversity was assessed using the average number of unique species per urine specimen. Women were treated clinically based on results from the clinical standard urine culture alone.  

**Results:** The 100μL EQUC protocol detected significantly more unique species (82) compared to the standard culture (8). The standard culture missed 75% (93/124) of the uropathogens detected using the EQUC protocols. In the YES cohort, the standard culture missed 50% (26/52) of the uropathogens. Standard culture detected most Escherichia coli (92% - 22/24), but detected only a minority of all other uropathogens (9% - 9/100). The optimal EQUC version [100μL of urine plated onto Blood (5% CO2), CNA (5% CO2), and MAC (O2) with 48 hours of incubation] detected more uropathogens 78% (97/124) than standard culture 25% (31/124) (Fig. 1).  

**Conclusion:** Improved methods of uropathogen detection may aid clinicians in selecting treatment for women reporting UTI symptoms. The optimal form of EQUC markedly improves uropathogen detection. These findings support the necessity for an immediate change in urine culture procedures.
SAME DAY UROGYNECOLOGY SURGERY: RATES OF ACUTE POSTOPERATIVE URINARY RETENTION WHEN USING SPINAL VERSUS GENERAL ANESTHESIA
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Presented By: Eric Hurtado

Introduction and Objectives: There is paucity of data regarding postoperative urinary retention (POUR) for outpatient pelvic organ prolapse (POP) vaginal surgery and the effects of spinal anesthesia. We hypothesized that spinal anesthesia was going to be a risk factor for developing POUR.

Methods: This was a retrospective review of outpatient POP vaginal surgeries performed in 2014. A standardized voiding trial was performed by backfilling the bladder with 300 ml of saline. A successful trial was if the patient voided two-thirds of the total volume instilled, confirmed by bladder scanner. Our primary outcome was to compare POUR requiring discharge with a Foley catheter between spinal and general anesthesia. Multivariate logistic regression was performed for variables with significance at p<0.1 at the univariate level.

Results: A total of 177 procedures were included, 126 with general and 51 with spinal anesthesia. The overall POUR rate was 48.9%. Multivariate logistic regression demonstrated that age <55 years (adjusted odds ratio [OR] 3.73; 95% confidence interval [CI], 1.31-11.7), diabetes (adjusted OR 4.18, 95% CI 1.04-21.67), and having a cystocele ≥ stage two (adjusted OR 4.23, 95%CI 1.89-10) were risk factors for developing POUR (Table 1).

Conclusion: Acute urinary retention after outpatient vaginal pelvic floor surgery can vary by procedure, but overall is 48.9%. Spinal anesthesia does not contribute to POUR but rates are higher in those women that are younger than 55 years of age, those who have a cystocele ≥ stage two preoperatively, and those with a history of diabetes.
DOES POST-VOID RESIDUAL AFTER BOTOX INJECTION PREDICT TREATMENT RESPONSE?

Lauren N Wood, MD; Devin N Patel, MD; Justin J Houman, MD; Juzar Jamnagerwalla, MD; Catherine Bresee, MS; Jennifer T Anger, MD, MPH; Karyn S Eilber, MD
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Presented By: Lauren Wood

Introduction and Objectives: Intravesical onabotulinumA (Botox ®) injection is an effective treatment for overactive bladder (OAB) refractory to medical therapy. However, a relative lack of data remains concerning predictors of response to intravesical Botox. Our goal was to determine whether post void residual (PVR) at two weeks post Botox injection predicts treatment response.

Methods: A retrospective review of patients who underwent intravesical Botox injection at a single institution by two FPMRS surgeons over a four-year period was conducted. Data collected included demographics, pre-procedure PVR and PVR at two-week follow up, as measured by bladder scan. Patients were then categorized as either "improved" or "no response" based on a composite of subjective and objective criteria.

Results: One hundred eighteen patients received 242 Botox injections between June 2011 and August 2015. Ninety-seven patients had complete data available. Ninety patients (93%) were women and 7 (7%) were men. Average patient age was 70 years (± 14). Eighty-three (85%) patients were categorized as improved at two-week follow up. Average post-procedure PVR in responders was 162.7 ± 120.0 cc (p <0.001). The average change in PVR from baseline was 118.2 ±133.2 cc (p <0.001). Of the fourteen non-responders (15%), the average post-procedure PVR was 48.3 ± 62.0 cc, with an average change in PVR of 23.5 ± 56.0 cc (p <0.001).

Conclusion: Patients who demonstrated improvement in their symptoms after Botox injection were more likely to have higher post-procedure PVR values and were more likely to have a higher change in PVR from baseline. PVR may be a useful clinical tool in determining a patient’s response to Botox.
AN OFFICE GUIDE TO OBTAINING URODYNAMICS (UDS) IN WOMEN WITH MULTIPLE SCLEROSIS (MS)
Himanshu Aggarwal, MD, MS; Catherine Howard; Gary Lemack
Presented By: Himanshu Aggarwal

Introduction and Objectives: Bladder dysfunction is a common manifestation of MS and can significantly affect quality of life. UDS are often performed to help guide therapy as a baseline in MS patients. The purpose of the current study is to develop a clinical guide to selectively obtain UDS in female MS patients.

Methods: Utilizing an IRB-approved neurogenic bladder database of patients seen in a specialty clinic from 2001-2013, we correlated the demographic and UDS findings in women with MS. Specifically, we identified various clinically relevant high risk parameters to determine which women were more likely to have pathological UDS findings.

Results: Of the 843 patients in our database, 136 MS patients had baseline UDS and UDI-6 scores. On univariate analysis, patients with age > 50 years, who had failed anticholinergics or who reported UDI-6 score of 2-3 on question 1 had significantly higher chance of having a small bladder capacity (< 200 ml) on UDS while on multivariate analysis age > 50 years was the only significant predictor of small bladder capacity (Odds ratio 1.36 CI: 0.57, 3.24, P= 0.0382). Similarly patients with PVR > 100 ml had significantly higher odds of having large bladder capacity (> 350 ml) (Odds ratio 5.04, CI= 2.02, 12.56, P=0.0002). Prior anticholinergic use, primary progressive MS (PPMS)/Secondary progressive MS (SSMS) status, being wheelchair bound, > 5 years of duration of MS and a response score of > 2 on UDI-6 question 1 were each associated with DO on univariate analysis. Only age > 50 years was a predictor of DO incontinence on both univariate and multivariate analysis (Odds ratio 4.81 CI: 1.47, 15.75, p=0.0095). PVR > 100 ml was weakly associated with diminished compliance on both univariate and multivariate analysis (Odds ratio 3.43 CI: 1.02, 11.56, P 0.046). Patients with PPMS/SSMS were more likely to have higher PdetQmax during voiding (Odds ratio 3.11 CI: 1.04, 9.30, P 0.0425). PVR > 100 ml and a response of > 2 on UDI-6 q number 5 were significantly associated with voiding dysfunction (DESD + Valsalva voiding) on univariate analysis while multivariate analysis revealed only PVR > 100 ml to be the significant predictor (Odds ratio 8.51 CI: 3.35, 21.62, P =0.0001).

Conclusion: Women under the age of 50 years with relapsing remitting MS and PVR < 100 ml do not require UDS as part of their initial assessment. Older patients with more advanced MS and prior anticholinergic are more likely to have urodynamic findings that may alter management.
THE IMPACT OF PONTINE DISEASE ON LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH MULTIPLE SCLEROSIS

Steven Weissbart, MD¹; Dasha Pechersky, MD²; Anna Malykhina, PhD³; Thomas Bavaria, BS⁴; Lisa Parillo, MD⁴; Lily Arya, MD¹; Michel Bilello, MD, PhD²; Alan Wein, MD, PhD⁴; Ariana Smith, MD⁴
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Presented By: Steven Weissbart

Introduction and Objectives: Patients with multiple sclerosis (MS) present with varying lower urinary tract symptoms, and this variation may be dependent on the location of lesions within the central nervous system. We investigated the relationship between pontine lesion characteristics on MRI and lower urinary tract symptoms in patients with multiple sclerosis.

Methods: We performed a prospective cross-sectional study of patients with MS and lower urinary tract symptoms (LUTS) who were undergoing brain/spine MRI. Patients were administered the AUA-SS, MESA and UDI-6, underwent EDSS scoring by a neurologist, and had their MRIs reviewed by neuroradiologists. The relationships between symptom scores and lesion number, size, and location were analyzed.

Results: There were 42 patients that completed the study and 20 (48%) had one or more pontine lesions. Total AUA-SS and UDI-6 were related to multiple SF-36 scales and not EDSS scoring. Weak urinary stream measured on the AUA-SS (coefficient 0.19 95% CI 0.02-0.35, p=0.028), and urgency incontinence measured on the MESA questionnaire (coefficient 0.44 95%CI 0.04-0.85, p=0.034) were related to pontine lesion diameter. There was no difference in urinary symptoms according to the presence or absence of a pontine lesion, or according to lesion location within the pons.

Conclusion: Pontine lesion size appears to be related to lower urinary tract symptoms (weak stream and urgency incontinence) in patients with MS. Therefore, CNS lesion characteristics may be able to phenotype voiding symptoms in patients with multiple sclerosis.

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**Poster #M7**

**HIGHER NEURAL CORRELATES AT FULL URGE IN PATIENTS WITH MULTIPLE SCLEROSIS WITH NEUROGENIC BLADDER DYSFUNCTION VIA CONCURRENT FUNCTIONAL MAGNETIC RESONANCE IMAGING (fMRI) AND URODYNAMIC TESTING (UDS)**

Rose Khavari, MD¹; Christof Karmonik, PhD²; Mike Shy, MD³; Jeff Anderson, PhD²; Tom Potter, MS⁴; Timothy Boone, MD, PhD²

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Presented By: Rose Khavari

**Introduction and Objectives:** Supraspinal mechanisms involved in micturition cycle in humans are just beginning to be described via functional neuroimaging. Exploring brain areas in neurologic diseases is important to discern any altered control over the micturition cycle. Neurogenic bladder dysfunction is seen in 95% of multiple sclerosis (MS) patients and has a significant impact on their quality of life. In this study, we seek to discover brain activity processes at full urge via fMRI in female subjects with MS and neurogenic bladder overactivity (NDO) and compare it to healthy normal controls.

**Methods:** Eighteen ambulatory female patients with MS and NDO were recruited for this IRB approved study. We recorded brain activity via fMRI with simultaneous UDS. After motion correction, the Generalized Linear Model created individual fMRI activation maps at full urge. A high-resolution structural scan of the brain transformed the individual fMRI activation maps into Talairach space. From these transformed datasets, an average fMRI activation map (student t-test) was created, from which areas of significant activation were identified (p<0.05).

**Results:** Group analysis of patients at full urge yielded significant areas of activation in regions associated with decision making and awareness (frontal gyrus), emotional regulation and error detection (anterior cingulate, cingulate gyrus), motor control (putamen, caudate nucleus, cerebellum). Diffuse activity was further observed in the parietal (inferior and superior lobules, precuneus) and occipital lobes (cuneus). MS patients showed more significant activity in these areas than healthy controls, which only showed prominent differential activity in sparse areas along the occipital lobe and temporal gyrus.

**Conclusion:** Our study is one of the first reports on brain activation centers associated with full urge in female patients with NDO caused by MS, demonstrating activation of a brain network consisting of regions for motor control, executive function, and emotion processing. Utilizing concurrent urodynamic testing and fMRI scanning has allowed greater insight into central control of all phases of micturition cycle.
SERIAL BOTULINUM TOXIN INJECTIONS FOR NEUROGENIC BLADDER: 4 YEAR URODYNAMIC OUTCOMES
Alexandra Rehfuss, MD¹; Gabriel Leinwand ²; Paul Feustel, PhD²; Elise De, MD¹
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Presented By: Alexandra Rehfuss

Introduction and Objectives: Botulinum toxin type A (BTxA) has been shown to be effective for management of neurogenic detrusor overactivity in the short term. Few studies report on long term results. Our study reports on urodynamic (UDS) outcomes at mean 44 months after serial BTxA injections.

Methods: Single center retrospective analysis of UDS prior to and following multiple BTxA injections performed for management of neurogenic detrusor overactivity, poor compliance or low capacity. Primary outcome was urodynamic maximum cystometric capacity. Secondary outcomes included urodynamic detrusor overactivity, leak, maximum detrusor pressure, compliance and post void residual volume, as well as presence of incontinence, urinary tract infections, and medication use. BTxA treatment failures were defined as those patients who changed management after two failed injections of escalating dose or progression of neurologic disease (e.g. underwent bladder augmentation or suprapubic tube after progression of multiple sclerosis).

Results: A total of 38 patients met inclusion criteria and were evaluated with UDS before and after more than 1 BTxA injection for treatment of neurogenic bladder dysfunction. Number of BTxA procedures per patient ranged from 2 to 14 with a median of 4.5 procedures. Mean interval between 1st BTxA injection and most recent UDS was 44 months. The mean increase in maximum cystometric capacity was 77 mL +/-186 (p = 0.015). There was a significant improvement in the number of patients with observable uninhibited detrusor contraction pre-BTxA (28/38) and post-BTxA (15/38), p=0.007. Among the19/38 patients with urodynamic incontinence prior to BTxA treatment, 16 (89%) resolved the finding after BTxA treatment. 5/38 patients had documented incontinence on follow up UDS despite being dry on pre-BTxA UDS. Those who failed BTxA (6/38) had a statistically significant lower pre-BTxA and post-BTxA capacity (p=0.020, p=0.011 respectively) compared to those who did not fail. These six went on to bladder augmentation or suprapubic tube.

Conclusion: Maximum cystometric capacity remains increased at 44 months after Botulinum toxin injection to the detrusor for treatment of neurogenic bladder dysfunction. Improved neurogenic detrusor overactivity and incontinence was still observed at a mean 44 months of serial injections. Patients with lower pre-BTxA capacity may be at higher risk for treatment failure.
Poster #M9
PREDICTORS OF LONG-TERM BLADDER MANAGEMENT IN SPINAL CORD INJURY PATIENTS - UPPER EXTREMITY FUNCTION MATTERS MOST
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Presented By: Dimitar Zlatev

Introduction and Objectives: Clean intermittent catheterization (CIC) is the gold standard for neurogenic bladder management in most patients with spinal cord injury (SCI). There is nonetheless a lack of long-term adherence to CIC, with a previously demonstrated 50% discontinuance at five-year follow-up. We hypothesize that limitations in upper extremity (UE) motor function represent a strong predictor for long-term CIC adoption.

Methods: We assessed Form I and II data from the 2000-2013 National Spinal Cord Injury Database. Bladder management was determined at initial discharge from rehabilitation and at one-year follow-up. Upper extremity (UE) motor scores were transformed using a previously published algorithm to predict a patient's ability to independently self-catheterize. Uni- and multivariable logistic regression modeling was performed to assess risk factors affecting: a) the lack of CIC adoption at initial discharge from rehabilitation, b) CIC discontinuance by one-year follow-up (CIC “dropout”), and c) adherence to management with an indwelling catheter rather than conversion to CIC at one-year follow-up.

Results: For all three modeled scenarios, UE motor function represented the most significant predictor of a lack of CIC adoption (OR range 2.1 - 6.3, p ≤ 0.003 for all). Other predictors included increasing age, female gender, and the neurologic scale of SCI impairment (Table 1).

Conclusion: Among physically limiting factors, impairment in UE motor function is the most significant predictor of a lack of long-term adoption of CIC in SCI patients. Treating physicians should account for the status of UE motor strength when counseling patients on neurogenic bladder management following spinal cord injury.

Poster #M26 – WITHDRAWN
**Poster #NM1**

**TO DESIGN A SIMPLE OFFICE-BASED METHOD TO INTERPRET FREE UROFLOWMETRIES (FF) IN THE FOLLOW-UP OF WOMEN AT RISK OF DEVELOPING OUTFLOW OBSTRUCTION OVER TIME AFTER SURGICAL INTERVENTIONS.**

Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD²; Philippe Zimmern, MD³

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Presented By: Françoise Valentini

**Introduction and Objectives:** Our three related aims are 1) to obtain a reliable evaluation of urethral obstruction (U) and detrusor contractility (k) from Qmax and pdet.Qmax, 2) to create, using the VBN model [1], nomograms for k and U allowing a quick evaluation of these parameters, 3) to propose a protocol to interpret free-flows (FF) in the follow-up of women at risk of developing bladder outlet obstruction.

**Methods:** The VBN mathematical model [1] links two patient dependent mechanical parameters (k, U), two circumstantial parameters (the filling bladder volume (Vini) and the catheter size) and three time-dependent functions (nervous excitations and a possible abdominal straining). Assuming that these three last functions have their standard value at the time of Qmax, nomograms were built from tables giving Qmax and pdet.Qmax for various combinations of k, U, Vini, without or with a 7F catheter.

**Results:** 1- The iso-U curves in the [Qmax, pdet.Qmax] plane (the obstruction nomogram) did not depend on Vini and had a linear shape. This property allowed to define a Woman Obstruction Index (WOI = pdet.Qmax - 0.5*Qmax) which has the same structure than the A-G number in men. 2- The iso-k curves depended on Vini and were not straight lines. They were fitted by algebraic equations easily programmable on any handheld device (Excel file). 3- A protocol was described to evaluate the possibility of urethral obstruction UFF from a FF. Any change of UFF during follow-up will be an alarm signal (Fig).

**Conclusion:** Use of the VBN mathematical model of micturition allows to construct two main nomograms to evaluate detrusor contractility (k) and urethral obstruction (U) in women from a pressure-flow study. Algebraic fitting of the curves carried out by any handheld device led to an economy of equipment and of time to calculate these 2 parameters. UFF is easily evaluated from a FF. Therefore, serial FFs over time should permit an easy follow-up of women at risk of progressing or recurring BOO after surgical interventions (i.e. recurrent stricture after urethral dilation, LUTS or suspected voiding dysfunction after sling...). 1- NAU 2000; 19:153-76
Poster #NM2
MODELED ANALYSIS OF THE URETHRAL RESISTANCE TO DILATION (URD) IN WOMEN.
Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD²
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Presented By: Françoise Valentini

Introduction and Objectives: The VBN knowledge mathematical model [1] is used for both genders with only a difference in the anatomical description of the urethra. The flow through urethra depends on a prostatic parameter in man (pucp) and on an “equivalent urethral compression” U in woman. A nomogram allowing evaluation of detrusor force and urethral obstruction from a PFs [2] gave some intriguing results: negative value of U for high flow rate-low pressure voiding or high value of U for women without proven BOO. Our purpose was to discuss the pathophysiological meaning of U.

Methods: The nomogram [2] was applied to two large populations of non-neurological women: 202 women without symptom suggestive of obstruction and referred for evaluation of LUTD, and 126 women with proven anatomical BOO to quantify the incidence of abnormal values of U. Modelled description of urethral elasticity was then performed.

Results: 1- In both sub-groups U remained constant until menopause age and then decreased regularly with ageing. U was significantly higher in the obstructed group (28.5±22.0 vs. 15.6±14.0 cm H2O, p < .0001) and a negative value of U was obtained in 17/202 (8.4%) women who voided with high flow rate – low detrusor pressure. 2- The meaning of U was not an obstruction but an “equivalent compression” due to a change in urethral elasticity consequence of ageing. The standard sigmoid-like function [1] describing urethral elasticity must be multiplied by a urethral resistance to dilatation: mean value vs. age sub-groups is given in the table; to explain voiding with high flow rate – low detrusor pressure we had to assume low URD (Fig).

Conclusion: A non-invasive method, mathematical modelling of micturition, allows to improve the description of the elasticity law of the urethra, thus to quantify the urethral resistance to dilation in women and to propose an explanation of some unexpected observations such as voidings with high flow rate-low detrusor pressure. Further studies could be histological analysis of the urethra with ageing and during some clinical conditions such as bladder outlet obstruction. 1-NAU 2000; 19:153-76; 2- J Urol 2015; 193 Suppl: e1102
Poster #NM3
EVALUATION OF DETRUSOR CONTRACTILITY AND URETHRAL OBSTRUCTION IN NON NEUROLOGICAL WOMEN
Françoise Valentini, MD, PhD¹; Brigitte Marti PT²; Pierre Nelson, PhD³; Philippe Zimmerm, MD⁴; Gilberte Robain, MD, PhD¹
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Presented By: Françoise Valentini

Introduction and Objectives: Voiding process is governed by detrusor contractility (k) and urethral obstruction (anatomical or urethral resistance) (U) parameters. Using a simple, handheld, Excel software, we recently developed nomograms [1] to evaluate k and U from 3 measurements of a PFs: filling volume (Vini), maximum flow rate (Qmax) and detrusor pressure at Qmax (pdet.Qmax). The aims of this study were to evaluate these parameters from large cohorts of non-neurogenic women presenting with various clinical conditions and tested urodynamically.

Methods: Urodynamic data were obtained from 2 large databases: 202 women without symptom suggestive of obstruction (N-O), referred for evaluation of LUTD and 126 women with anatomically proven BOO. We searched for a correlation between k and U vs. age in the N-O group and in UDS diagnosis sub-groups, correction for the effect of ageing (after studying the correlation between k and U) was introduced in sub-groups older than 50 years.

Results: 1- In the N-O group, value of k and U remained constant until menopausal age, and then decreased regularly with advancing age. 2- Mean value of k and U: significantly higher in the BOO group (N-O vs. BOO: p<.0001 for each parameter) (table). Correlation k(U): wide dispersion in SUI or ISD patients. Compared to phasic DO, k and U were significantly lower in women with SUI (p=.0183 and p=.0090) or ISD (p=.0060 and p=.0048). Compared to terminal DO, U was significantly lower in women with SUI (p=.0289) or ISD (p=.0172). 3- The value of k and U decreased regularly with ageing after menopause, allowing to propose a corrective factor of 0.011/y for k and 0.84/y for U. With age adjustment to 50 y, values of U and k parameters for terminal DO were close to those of BOO patients.

Conclusion: Evaluation of detrusor contractility (k) and urethral obstruction (U) can be obtained from a PFs using a simple software. A strong correlation was between k and U is consistent with an adaptive process. After age adjustment, anatomical BOO and terminal DO appear to produce values of k and U in a similar range. Age above 50 years old affects measurements; thus a corrective factor needs to be applied to compare U and k data across various age ranges. 1-J Urol 2015; 193: e1102
Poster #NM4
IS IT SAFE TO REDUCE WATER INTAKE IN THE OVERACTIVE BLADDER POPULATION? A REVIEW OF THE MEDICAL BENEFITS OF INCREASED HYDRATION
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Presented By: Lauren Wood

Introduction and Objectives: Overactive bladder (OAB) imposes a significant socioeconomic burden on the healthcare system. It is a commonly held belief that increased fluid intake is beneficial for one's health; however, increased fluid intake exacerbates OAB symptoms. Thus, it is imperative that clinicians appropriately educate patients for whom increased water intake may be detrimental (women with OAB) and patients with comorbidities that necessitate increased water intake (nephrolithiasis). We reviewed the literature to determine the true potential health advantages of increased water intake for the general population.

Methods: A systematic review of published articles on Pubmed, MEDLINE, and EMBASE was conducted. Articles published through 2013 were included. The data was reviewed independently by two individuals. Search terms included hydration, water intake, disease, chronic disease, recommended water intake, orthostatic hypotension, constipation, headache, coronary disease, cognition, and venous thromboembolism. Studies were included if they explored water intake in relation to decreased risk for a particular disease. Exclusion criteria included articles evaluating contaminants in water, the effects of fluid intake other than water (such as alcohol or caffeine), and parenteral hydration.

Results: The role of hydration in prevention of recurrent nephrolithiasis and contrast-induced nephropathy is well established; however, there is insufficient evidence to advise increased hydration for prevention of headaches/migraines, or cardiovascular disease. Although some studies point to a link between dehydration and cognition, the nature of these effects are not well defined, and the evidence thus far is inconclusive. The evidence regarding a link between bladder cancer and dehydration is inconclusive (Table 1).

Conclusion: Other than in prevention of nephrolithiasis and contrast-induced nephropathy, there remains little evidence that consumption of high volumes of water improves one's overall health. Therefore, in patients suffering from OAB with no other conditions that may be worsened by dehydration, fluid restriction can be safely encouraged.
Poster #NM5
METABOLIC SYNDROME IN FEMALE LOWER URINARY TRACT SYMPTOMS
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Presented By: Hana Yoon

Introduction and Objectives: Increasing evidence from clinical and epidemiological studies has shown associations between lower urinary tract symptoms (LUTS) and major chronic illnesses, such as heart disease and diabetes. Reports show significant correlation between markers of metabolic syndrome and LUTS in men. However, metabolic syndrome also takes major clinical concern in women. Besides, population of incontinence and/or OAB is not small in aged women. We attempted to examine the correlation between metabolic syndrome and lower urinary tract symptoms, overactive bladder in particular in female.

Methods: A total of 384 female patients participating in a health examination underwent completed the International Prostate Symptoms Score (IPSS) questionnaire and the Overactive Bladder Questionnaire Short Form (OABq-SF) symptom bother scale. Metabolic syndrome was defined by using the National Cholesterol Education Program Adult Treatment Panel III criteria announced in 2001. We analyzed differences in lower urinary tract symptoms in accordance with distinctions of according to the presence of metabolic syndrome and constitutional the component elements of metabolic syndrome.

Results: Mean age was 49.7±5.1 years old. Among all patients, the number of patients with metabolic syndrome was 33 females (8.6%). Depending on the presence or absence of metabolic syndrome, the IPSS and OABq-SF scores showed significant differences (p<0.05). Among various factors, age, HDL cholesterol, and triglyceride showed significant correlation with LUTS consisting OAB.

Conclusion: Certain factors of metabolic syndrome have significant correlations in LUTS in women. Although aging is the well- known risk factor in OAB, this study supports that presence of metabolic syndrome would be the significant risk factor in female OAB. More and larger well-designed studies on the effects of metabolic syndrome in managing OAB in female should be required. Meanwhile, early detection and proper management of metabolic syndrome not only managing symptoms of OAB will provide better clinical outcomes.
Poster #NM6

HYDRATION STATUS IS NOT ASSOCIATED WITH URINARY INCONTINENCE

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Presented By: Marcella Willis-Gray

Introduction and Objectives: Given conflicting evidence regarding the relationship between fluid intake and urinary incontinence (UI), our objective was to determine if there is an association between hydration status and UI in men and women in a nationwide, population-based sample.

Methods: We utilized data from the 2009-2010 National Health and Nutrition Examination Survey (NHANES), a cross sectional survey of the US non-institutionalized population. Financial funding was not needed. Our primary outcome was moderate/severe UI in the prior 12 months defined as, ≥ 3 on a validated UI severity index, range 0-12. Our exposure of interest dehydration, defined as urine osmolality ≥ 800mOsm/kg versus adequate hydration (< 800mOsm/kg). We also evaluated whether dehydration was associated with different subtypes of UI – e.g. urge, stress and mixed UI. We included men and women ≥ 20 years who had both UI and urine osmolality data. Appropriate sampling weights were utilized to represent the national population. To evaluate the association of UI and hydration status by gender, separate multivariable logistic regression models included the following covariates: age, race, educational status, poverty, body mass index, self-rated health, comorbidities, and depression; parity and hysterectomy among women.

Results: Among the 6150 total subjects, 5061 (82% - 2574 men and 2487 women) had both UI and urine osmolality data. Compared to women, men were less likely to report UI (4.8% vs 17.7% p<0.001) and more likely to be dehydrated (22.0% vs 34.0% p<0.001). In bivariate analysis, men who were dehydrated had less UI (2.8% vs 5.8% p= 0.002); however, there was no association with dehydration and UI in multivariable models (OR 0.7, 95% CI 0.4-1.3). Similarly, there was no association with dehydration and the different UI subtypes in adjusted models among men: urge (OR 0.9, 95% CI 0.6-1.2), stress (OR 1.2, 95%, CI 0.7-2.0) and mixed UI (OR 0.8, 95% CI 0.4-1.7). In women, dehydration was not associated with UI in both bivariate analysis (13.6% vs 18.8% p= 0.06) and multivariable models (OR 1.1, 95% CI 0.7-1.9). Dehydration was also not associated with incontinence subtypes: urge (OR 0.9, 95% CI 0.7-1.2), stress (OR 1.0, 95% CI 0.7-1.4) and mixed UI (OR 1.0, 95% CI 0.7-1.5).

Conclusion: Hydration status as defined by urine osmolality was not associated with moderate to severe urinary incontinence in men or women.
VERY LOW REAL TIME RATE OF URINARY RETENTION AFTER INTRADETRUSOR BOTOX FOR NON-NEUROGENIC OVERACTIVE BLADDER
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Presented By: Kirin Syed

Introduction and Objectives: According to the most recent AUA/SUFU guidelines, intradetrusor onabotulinumtoxinA (BTN/A) is a standard, evidence strength grade B, third line treatment for refractory non-neurogenic overactive bladder (OAB). Urinary retention is the most common clinically significant reported side effect ranging from 5.4% to 43% in previous studies. The aim of this study was to investigate the real time rate of urinary retention in patients treated with BTN/A for refractory non-neurogenic OAB in a multi-institutional study.

Methods: Retrospective chart review identified 71 patients who were treated with 100U BTN/A for refractory non-neurogenic OAB from August 2011 to July 2015 at two institutions. Using a flexible cystoscope, 100U Botox® reconstituted with 10 ml normal saline was administered. Injections of 1ml (10units/mL) were administered in 10 evenly distributed sites sparing the trigone. Pre and post BTN/A post void residuals (PVR) were reviewed. Urinary retention was defined as PVR >200mL requiring clean intermittent catheterization (CIC).

Results: After exclusion, the study group consisted of 66 patients with a mean age of 67 years and 30% were men. Mean pre and post-procedural PVR was 14.06mL and 69.21mL. Eight patients (12.12%) were noted to have elevated PVR >200mL post injection however only one patient (female) required initiation of CIC. The rate of urinary retention was 1.5% (N=1). There was no correlation with age, history of previous radiation, diabetes or prior use of a neuromodulator device.

Conclusion: Contrary to prior studies, our patient cohort demonstrates a very low risk of real time urinary retention rates in appropriately selected patients treated with BTN/A for refractory non-neurogenic OAB.
Poster #NM8
LOW AMPLITUDE RHYTHMIC CONTRACTIONS INFLUENCE SENSATIONS OF URGENCY IN PATIENTS WITH OVERACTIVE BLADDER SYNDROME
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Presented By: Andrew Colhoun

Introduction and Objectives: Low amplitude rhythmic contractions (LARC), visualized as phasic intravesical pressure (pves) changes, are commonly seen during urodynamics (UD). A significant rise in pves will increase bladder wall tension and can elicit an increase in sensation. LARC are dampened by the viscoelasticity of the bladder, and not all elevations in bladder wall tension are expected to be sufficient to cause an increase in sensation. This study aims to determine thresholds for pves amplitude elevations that trigger patient-reported changes in sensation during filling.

Methods: As part of an IRB−approved urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB), defined as ICIq−OAB question 5a ≥ 3, underwent standard UD testing and simultaneously used a real−time sensation meter to record continuous changes in sensation from 0−100% during filling. Patients were instructed on use of the meter prior to the study. Sensation values were time-linked to pves. Normalized pves was differentiated to identify inflection points, and baseline pves was calculated via polynomial regression (Figure 1). Significant elevation in pves from baseline was defined as ≥ 5% normalized value, while any elevation in patient-reported sensation (values sampled every 10 seconds) was considered significant. Significant phasic rises in pves were juxtaposed to sensation changes to determine if pves and sensation events coincided.

Results: Twelve patients underwent UD with use of the sensation meter – three were excluded (transducer error, fill to 30mL, only 10% sensation reached). Average phasic pves and sensation change event frequencies during filling were similar: 2.0±0.2 & 2.1±0.3 cycles/min, respectively (p=0.9). Of sensation changes, 53±8% were within 10 seconds of significant pves elevations (average Δpves = 20±3% normalized minimum).

Conclusion: The frequency of changes in patient-reported sensation during filling correspond with phasic pves elevations, generated by LARC. Further refinement of sensation thresholds may allow development of non-invasive techniques to better characterize a LARC-mediated subtype of OAB.

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**Poster #NM9**

**EFFICACY AND TOLERABILITY OF MIRABEGRON IN MULTIPLE SCLEROSIS: A PROSPECTIVE ANALYSIS**

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Presented by: Temitope Rude

**Introduction and Objectives:** Approximately 80% of Multiple Sclerosis (MS) patients are affected by bladder dysfunction. Most experience overactive bladder (OAB) symptoms. Management is complicated by the high prevalence (43-74%) of concomitant bowel dysfunction. Anticholinergics, traditionally used in the treatment of OAB symptoms in MS, have side effects including dry mouth, constipation and cognitive impairment. Over 50% of idiopathic OAB patients discontinue therapy in the first year due to side effects and poor efficacy. Mirabegron, a Beta 3 agonist, is now used for idiopathic OAB. It has a different mechanism of action and side effect profile. Our aim was to determine whether mirabegron would be effective in MS patients without negatively affecting bowel function.

**Methods:** We prospectively surveyed MS patients presenting to our MS center with OAB symptoms. At the baseline and six-week follow up visit, we collected post void residuals (PVR), blood pressure (BP), demographics and standardized questionnaires. These include the Overactive Bladder Questionnaire (OAB-q), Patient Global Impression of Severity (PGI-S), Urinary Distress Inventory (UDI -6) and PACSYM (Patient Assessment of Constipation Symptoms). Paired T-test and multivariable logistic regression were performed using SAS software.

**Results:** Twenty-five patients were enrolled, with 13 patients completing follow-up at time of analysis. Mean age was 51.7(±9.1). 39% were male. Mean duration of MS diagnosis was 10 (±7.6) years. 92% complained of baseline constipation. At six weeks, there was a significant improvement in bowel function (p= 0.037) and OAB symptoms (p=0.000) (figure 1). The mean improvement in PAC-SYM score was 1.46, a clinically significant difference based on prior validating studies. There was significant improvement in PGI-S (p=0.01), with most reporting symptoms as “much better”. BP elevation, urinary retention, dry mouth, fatigue and cognitive impairment were not observed.

**Conclusion:** In this pilot study, mirabegron seems effective for the management of OAB in MS patients with no tolerability issues. It is notable that patients actually experienced an improvement in constipation. The sample size is small and no control group was used. However the findings are encouraging and show the need for larger controlled trials of Beta 3 agonists in MS patients to explore the potential improvement in bowel function.
Poster #NM10
URETHRAL CATHETER WITH DISTRIBUTED PRESSURE SENSORS FOR IMPROVED URODYNAMICS
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Presented By: Gerald Timm

Introduction and Objectives: This study presents a novel instrumented catheter for improved urodynamics. The catheter contains an embedded flexible sensing strip with a series of nine pressure sensors along the length of the catheter and EMG sensors that can be positioned at the urogenital diaphragm. The distributed sensors allow measurement of the urethral pressure profile without having to pull the catheter through the urethra. This enables measurement during provocative maneuvers such as coughing, straining and val salva.

Methods: The pressure transducers on the sensing strip are capacitive micro-sensors fabricated using electronic surface micro-machining techniques. Each sensor contains top and bottom copper electrodes and an intermediate polymer layer with air gaps that allow the electrodes to move with respect to each other in response to pressure. A capacitance measurement chip is located on the catheter next to the sensing strip and digitizes the measured signals before transmission to a computer. The entire sensing strip and on-catheter electronics are encased in a soft flexible polymer called PDMS to protect them from liquid and allow robust electronic connections. The sensing strip also has reference transducers to measure parasitic capacitance and compensate for the same.

Results: In-vitro tests are conducted with the sensing strip in an air pressure chamber where the pressure levels can be controlled with a 0.1 psi resolution. The pressure chamber results show that the catheter can measure pressure with an accuracy of seven centimeters of water. The pressure chamber results provide calibration data for correlating readings on individual sensors with actual pressure values. Next, tests are conducted on a bladder and urethra harvested from a sheep. The instrumented catheter is inserted per urethra so that the tip of the sensing strip is in the bladder. Cuffs are placed around the urethra so as to apply known pressure levels and verify the performance of the embedded sensors on the catheter. Saline is infused into the bladder through the catheter and the water voided by pressing on the bladder to verify the working of the catheter.

Conclusion: Future tests with the catheter will include urodynamics on female dogs in an IACUC approved study and IRB-approved human tests.
OVERACTIVE BLADDER PHARMACOTHERAPY-DOES MEDICATION CYCLING HELP?

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Presented By: Alexis Tran

Introduction and Objectives: Overactive bladder syndrome (OAB) is a highly prevalent condition, with rates as high as 30%. The mainstay of therapy is second-line management with medications. It is well-documented that discontinuation rates are high. Little is known about the association between the continual cycling of OAB medications and the likelihood for total discontinuation (TD). Our aim was to determine the number of medications utilized before a patient totally discontinues medications. We hypothesize that after multiple attempts, a patient may more likely discontinue all medications.

Methods: This was a retrospective cohort study. Charts obtained from 1/03-7/14 with the ICD-9 code for symptoms of OAB and at least one OAB prescription were randomly selected. Data collected was clinical, demographic, prescription information and prescribing specialty. Persistence was defined as continuous days on therapy. A gap > 45 days was classified as a discontinuation. Medication switch was a switch in medication or from immediate to extended release. The number of medication attempts was modeled against TD rate using survival analysis and Kaplan-Meier (K-M) curves.

Results: 249 patients were identified among three specialties: Female Pelvic Medicine and Reconstructive Surgery (FPMRS), General Urology (GU) and Internal Medicine (IM). Twenty-three patients overlapped in OAB care. The rate of TD was 25% (FPMRS), 55% (GU), and 47% (IM), (p=.0013). The mean number of medications cycled before TD +/- SD was 2.95 +/- 1.6 with FPMRS, 1.18 +/- 0.6 with GU, 1.46 +/- 0.88 with IM, (p<.0001); 3.71 +/- 1.8 with a range of one-to-seven with overlapped patients. Overall, the Pearson correlation between increasing number of medications and persistence was weakly positive, (rho = 0.1563); for GU, a strong correlation was seen, (rho = 0.4955, p = .0263). The pattern of discontinuation-free probability (DFP) is significantly different among specialties across the number of medication attempts (p<.0001). At the third attempt, 79% (FPMRS), 25% (GU), 25% (IM) of patients were persistent. At the fourth, the persistence for FPMRS, GU, IM was 71.2%, 25% and 12%, respectively. FPMRS demonstrated 54% DFP at use of five medications.

Conclusion: In this population, DFP distributions are low at three-to-four medications for other (non-FPMRS) prescribing specialties. Our data suggest that continual OAB medication cycling improved persistence; but each medication attempt must be balanced against an increasing risk of TD.
PHENOTYPING PATIENTS WITH UNDERACTIVE BLADDER BY ETIOLOGY: IS THERE PRACTICAL MERIT?

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Presented By: Elizabeth T. Brown

Introduction and Objectives: Underactive bladder (UAB) is poorly understood. Recent review articles propose that potential etiologies for UAB include neurologic, idiopathic, iatrogenic, and myogenic factors. However, there are few data that support phenotyping patients clinically based on underlying etiology. Our aim was to determine whether women with UAB could be categorized based on the presumed underlying etiology to identify associated clinical phenotypes.

Methods: We performed a retrospective review of our clinic patients diagnosed with UAB from 2012-2015 who underwent urodynamics (UDS). Each UDS was reviewed to identify patients with detrusor underactivity. Patients were excluded from the study if they had undergone pelvic surgery within one year or showed bladder outlet obstruction on UDS. Based on preliminary analyses, we stratified patients by presumed etiology into two cohorts: neurogenic (spinal cord injury, Parkinson's disease, multiple sclerosis, cardiovascular accident, spinal surgery, and other neurologic condition) and non-neurogenic. Patient demographics, comorbidities, and symptomatology were then compared between groups using Fisher's exact and t-test statistics.

Results: 115 women met study inclusion criteria (neurogenic n=64, non-neurogenic n=51). Mean age was 57.6±15.3 years and mean body mass index was 28.4±6.4, which did not differ between groups (p=0.42, p=0.10, respectively). There were no significant differences between groups for patient comorbidities or symptomatology (see Table) except the grade of pelvic organ prolapse (p=0.01). Average AUA Symptom Score was 21.1±7.5, and did not vary between groups (p=0.83).

Conclusion: In this analysis of women with UAB, categorizing patients by presumed neurologic etiology does not appear to have practical merit. As such, future opportunities exist to identify clinical phenotypes in patients with UAB.
APPLYING SIX SIGMA AND LEAN METHODOLOGY FOR IDENTIFYING BARRIERS TO THE CARE OF PATIENTS WITH OVERACTIVE BLADDER

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Presented by: Daniel Liberman

Introduction and Objectives: Six Sigma and Lean (SS/L) are quality improvement tools that are increasingly being used in the health care industry. With a high attrition rate found in the overactive bladder (OAB) literature, we describe our efforts to implement the SS/L paradigm to measure the adherence of OAB care. Furthermore, we identify barriers in OAB care and report countermeasures to optimize OAB care.

Methods: We quantified our current state using OAB related ICD9 and CPT codes, recording; patient demographics, the number of patients seeking care, number of appointments, number of loss to follow-up and number of patients receiving first, second and third line therapies. After in-depth investigation of our current state, SS/L a five-day Kaizen (lean meeting) was organized to analyze current barriers to care, to envision an ideal state, and to develop interventions for improved access and quality of care delivered.

Results: In 2012 and 2013 our office treated 8485 patients for OAB related diagnoses. Thirty percent of patients had only one appointment. Thirteen percent of patients received conservative non-pharmacologic therapies (biofeedback or physical therapy) and 6% received third line therapy (interstim, posterior tibial nerve stimulation, or Botox). Of those receiving non-pharmacotherapy, 8% received more than one type of therapy. Multiple interventions were developed to potentially improve the quality of care delivered. Many of these revolved around improved patient education and expectation management, frequent patient reassessment of satisfaction and improvement, streamlining processes to decrease number of appointments and wait time to therapy, and developing a “program” for our patients and providers.

Conclusion: Despite the intrinsic limitations of medications due to low efficacy and adherence, only 19 percent of our patients receive non-pharmacotherapy for overactive bladder, and patient drop-out of therapies is high. After extensive analysis of our current state, multiple interventions have been proposed to improve access to care. Repeat analysis within our office after implementation of these countermeasures will determine if these interventions were successful at improving incontinence outcomes and quality of care delivered to our overactive bladder population.
Poster #NM14
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Presented by: Evgeniy Kreydin

Introduction and Objectives: Marriage has been associated with improved outcomes in a number of health conditions. We wished to determine whether marital status was associated with urinary incontinence and lower urinary tract symptoms.

Methods: We used data from the 2003 to 2012 National Health and Nutrition Examination Survey cycles to examine the association between marital status and self-reported stress incontinence, urge incontinence and nocturia. Marital status was defined as single (never married, divorced, widowed or separated) or married (married or living with a partner). Marital status was examined in a weighted, variance-corrected multivariate logistic regression for association with each outcome of interest. Models examining male subjects were adjusted for age, body mass index, race, diabetes, and self-reported health status. Models examining female subjects were also adjusted for parity.

Results: Cohorts of 4949 women and 6616 men were included in the study. Married women were less likely to report urge incontinence (OR 0.86, 95%CI 0.73-0.99) and nocturia (OR 0.78, 95%CI 0.64-0.95) and more likely to report stress incontinence (OR 1.27, 95%CI 1.10-1.47), than their single counterparts. Married men were less likely to report urge incontinence (OR 0.74, 95%CI 0.59-0.92) and nocturia (OR 0.75, 95%CI 0.61-0.92) than their single counterparts. No difference in stress incontinence was observed between married and single men.

Conclusion: This study demonstrates that married women and men are less likely than single individuals to report urge incontinence and nocturia. Marital status is known to have a protective role in a number of health outcomes. To our knowledge, this is the first study to demonstrate an association between marriage and decreased incontinence. Interestingly, marriage was significantly associated with increased stress incontinence in women even after adjustment for parity. This finding suggests that other factors may contribute to stress incontinence in married women.
Poster #NM15
HIGHER URINE LEVELS OF ENVIRONMENTAL TOXINS ARE ASSOCIATED WITH INCREASED INCONTINENCE AND NOCTURIA IN MEN
Evgeniy I. Kreydin, MD¹; Michelle M. Kim MD, PhD²; Janine L. Oliver, MD¹; Seth A. Cohen, MD¹; A. Lenore Ackerman, MD PhD¹; Ja-Hong Kim, MD¹; Shlomo Raz, MD¹
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Presented by: Evgeniy Kreydin

Introduction and Objectives: Exposure to environmental and industrial pollutants and toxins has been associated with a number of adverse health outcomes. We wished to determine whether toxins levels were associated with increased likelihood of incontinence and nocturia.

Methods: We used data from the 2012 National Health and Nutrition Examination Survey cycle to examine the association of 13 heavy metals, three perchlorates, two pesticides, 14 phthalates, 10 polyaromatic hydrocarbons (PAH), 12 polyfluoroalkyl (PFC) chemicals, and 26 volatile organic compounds (VOCs) with self-reported stress incontinence, urge incontinence and nocturia. Urine concentration of each pollutant was normalized to urine creatinine and log-transformed. Each pollutant was examined in a weighted, variance-corrected multivariate logistic regression for association with each outcome of interest. Models examining male subjects were adjusted for age, body mass index, race, diabetes, and self-reported health status. Models examining female subjects were also adjusted for parity.

Results: Cohorts of 602 women and 565 men were included in the study. Urinary levels of pollutants were consistently higher in men. Prevalence of incontinence and nocturia was significantly higher among women. Among women, no association was noted between pollutant levels and the outcomes of interest. Among men, increased concentrations of three VOCs, two heavy metals and one perchlorate were associated with increased stress incontinence; increased concentrations of two VOCs, one heavy metal and three PAHs were associated with increased urge incontinence; and increased levels of eight VOCs, two heavy metals, six PAHs, one pesticide, and one perchlorate were associated with increased nocturia.

Conclusion: This study demonstrates that increased urinary levels of certain environmental and industrial pollutants are associated with increased lower urinary tract (LUT) dysfunction in men. Exposure to these pollutants has been associated with neurotoxicity and other adverse health outcomes. We hypothesize that pollutant exposure may be a marker for neurological injury leading to LUT dysfunction. Distinct etiology of incontinence between genders likely accounts for lack of association between pollutants and LUT dysfunction in women.
Poster #NM16
IN DIABETIC PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY, CONCURRENT PERIPHERAL NEUROPATHY CORRELATES TO NEITHER BLADDER SENSATION NOR TO THE DEGREE OR TYPE OF IMPAIRED CONTRACTILITY
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Presented by: Bradley Potts

Introduction and Objectives: Diabetes mellitus (DM) is implicated as the major metabolic disease associated with detrusor underactivity (DU). The pathogenesis of DU in patients with DM is described as both neurogenic and myogenic, mostly due to oxidative stress of various tissues. In order to learn more about the neurogenic effects associated with DM and DU, we set out to investigate if the presence of peripheral neuropathy relates to bladder sensation, or to the degree or type of impaired contractility.

Methods: We performed an IRB approved retrospective review of patients who underwent pressure-flow urodynamic study (UDS) at our institution (1996 to 2014). We included males age >18 years with diabetes, emptying symptoms, bladder contractility index (BCI) <100, and bladder outlet obstruction index <40. We excluded the following known causes of DU: concomitant BOO on UDS, pelvic radiation, and other neuropathology (stroke, congenital/degenerative disease, and brain/spinal/peripheral nerve trauma/surgery). After identifying our sample of patients with DM, we used Fisher’s Exact Test to compare bladder sensation and the types of DU between patients with and without peripheral neuropathy. We used the Wilcoxon Rank Sum Test to compare BCI between groups.

Results: We identified 58 patients with UDS-confirmed DU and a diagnosis of DM. Of these, 26 (48%) had documented peripheral neuropathy and 28 (52%) did not. Bladder sensation was reported intact in 19 of 24 patients (79%) with neuropathy and in 25 of 28 patients without neuropathy (89%), showing no significant difference (P=0.47). Types of DU in those with neuropathy included detrusor hyperactivity with impaired contractility (DHIC) (12, 46%), isolated DU (9, 35%), and actontactile bladder (AB) (5, 19%). Types of DU in those without neuropathy included DHIC (16, 57%), isolated DU (10, 36%), and AB (2, 7%). There was no significant difference in proportions of DU types between the two groups (P=0.42). Mean BCI was 53.0 in patients with neuropathy and 67.1 in patients without neuropathy, showing no significant difference (P=0.11).

Conclusion: In patients with DM and UDS-confirmed DU, the presence of peripheral neuropathy correlates to neither bladder sensation nor to the degree or type of impaired contractility. We will continue to explore the relationship between DM and DU as we investigate findings pertinent to previously proposed and novel pathophysiologic mechanisms.
Poster #NM17
PERIOPERATIVE OUTCOMES IN ADULT PATIENTS WITH SPINA BIFIDA UNDERGOING LAPAROTOMY FOR UROLOGIC DISEASE
David Moore, MD; Joshua Cohn, MD; Elizabeth Timbrook Brown, MD, MPH; W. Stuart Reynolds, MD, MPH; Douglas Milam, MD; Roger Dmochowski, MD; Melissa Kaufman, MD, PhD
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Presented By: David Moore

Introduction and Objectives: Adults with spina bifida present a significant operative challenge because of frequent comorbid disease, body habitus, prior surgery, and limited functional status. Perioperative outcomes associated with complex urologic reconstruction in adult patients with spina bifida have received limited study. We sought to characterize perioperative outcomes in adult patients with spina bifida following laparotomy for urologic disease.

Methods: We identified all patients >18 years of age with spina bifida who underwent laparotomy for urologic intervention and had a minimum of three months of follow-up. Complications at last follow-up were classified according to the Clavien-Dindo Classification of Surgical Complications. When multiple complications of differing grades occurred in the same patient, each was considered separately.

Results: Twenty-three patients met inclusion criteria, 18 of whom (78%) were male. At the time of laparotomy, mean age was 36.0 ± 11.2 years, body mass index 28.4 ± 8.1 kg/m2 and ASA class 2.9 ± 0.41. Procedures included cystectomy with urinary diversion (14), bladder augmentation (6), urinary diversion only (2), and lysis of adhesions (1). Mean length of hospitalization was 8.0 ± 2.4 days. At a median follow-up of 44.2 months (IQR 16.1-83.8), 21 patients (91%) had experienced at least one post-operative complication, with an average 3.0 ± 2.2 complications per patient. At least one grade I, II, IIIa, IIIb, IVa, and IVb complication was experienced by 17 (74%), 10 (43%), 6 (26%), 3 (13%), 2 (9%), and 3 (13%) patients, respectively. Twelve patients (52%) experienced a complication of grade III or higher. There were no deaths. The most frequent complications were surgical site infection (48%), UTI (39%) and prolonged ileus (26%).

Conclusion: This study demonstrates the challenges associated with perioperative management of adult patients with spina bifida undergoing laparotomy for urologic intervention. Because of increased life expectancy in this patient population, there is heightened need for adult urologists to participate in their care. Patients and urologists should be aware of the risks prior to proceeding with major urologic surgery. Future studies should focus on identifying risk factors for a complicated postoperative course and developing patient care pathways aimed at minimizing morbidity.
Poster #NM18
PATIENT CHARACTERISTICS AND REFERRAL PATTERNS OF AN ADULT CONGENITAL NEUROGENIC BLADDER POPULATION: NEED FOR A BETTER TRANSITION
Laura Martinez, MD¹; Jennifer Lewis, APRN²; Dominic Frimberger, MD²; Gennady Slobodov, MD²
¹University of Oklahoma; ²Oklahoma City, OK
Presented By: Laura Martinez

Introduction and Objectives: Patients with congenital urologic conditions require chronic care from early childhood. As adulthood approaches, they often face an informal transition to an adult urologist, and may become lost to follow up. We examined characteristics and referral patterns of our cohort of adult neurogenic bladder patients, who did not undergo formal transition. We hypothesized that baseline characteristics and outcomes would be more favorable in the subset that were directly referred from Pediatric Urology.

Methods: Data were collected retrospectively from 35 adult patients with congenital urologic conditions. Data included demographics, origin of neurogenic bladder, bladder management, referral information, and subsequent surgeries. Data were stratified, comparing patients who were referred by Pediatric Urology versus outside sources. The patients referred from Pediatric Urology were instructed to transition, but had no formal education or preparation.

Results: Thirty-five adult neurogenic bladder patients were identified. Patient characteristics, reasons for referral, and bladder management are summarized in Table 1. Referral sources were Pediatric Urology (34%), other adult urologist (29%), primary care (24%), neurosurgery (6%), inpatient consult (6%), ER consult (3%). Time since last urology visit was significantly longer for non−pediatric referrals (Table 1). The majority of patients (20/35) underwent surgery on average two months after initial referral. Reflecting reasons for referral, the pediatric referrals were more likely to undergo anti−incontinence surgery (2/6) while the non−pediatric referrals were more likely to have stone surgery (6/14).

Conclusion: Non−pediatric urology referrals were more likely to be referred due to complications such as urolithiasis or infection, and went significantly longer without urologic care. Renal preservation continues to be an important goal for patients with neurogenic bladder, which may be difficult to achieve in patients with poor transition. As such, we need to identify reasons for lack of follow up in this population. Our institution has since established a formal neurogenic bladder clinic with a significant focus on standardized transitions.
Poster #NM19

LESS IS MORE – A NEW INTRADETURSOR ONABOTULINUMTOXIN A INJECTION TECHNIQUE FOR NEUROGENIC AND IDIOPATHIC DETRUSOR OVERACTIVITY

Bryan Sack, MD; Michael A. Avallone, MD; Ahmad M. El-Arabi, BS; Michael Guralnick, MD, FRCSC; R. Corey O’Connor, MD
Medical College of Wisconsin, Milwaukee, WI
Presented By: Michael Guralnick

Introduction and Objectives: Intradetrusor onabotulinum toxin A (BTX-A) injections for refractory detrusor overactivity (DO) typically involve 10-30 injections of 100 - 300 units (u). Published efficacy, duration and infection rates are 35-65%, 12-39 weeks and 2-32%, respectively. We evaluated, as a pilot study, whether fewer, larger volume injections would provide similar efficacy and duration, with a decreased complication rate, when compared to the “standard” technique.

Methods: This is a retrospective review of BTX-A naïve patients with urodynamic confirmed neurogenic DO (NDO) or idiopathic DO (IDO) treated with intradetrusor BTX-A injections from January 2013 to January 2015. NDO patients were injected in 2-3 sites with either 160 or 300u depending on their desire to void. IDO patients were injected with 100-160u via 1-2 injection sites. Patients completed an ICIQ-SF pre- and post-procedure (2-4 weeks). Success was defined as an ICIQ improvement of at least 6 points and a > 50% improvement in patient reported urinary complaints (subjective reporting). Injection-related complications, side effects, post void residual (PVR) urine volume (when applicable) and efficacy duration were also recorded.

Results: Forty-five patients (23 IDO and 22 NDO) were included and table 1 shows the efficacy results. Mild hematuria that resolved within 48 hours occurred in three (7%) patients. Symptomatic urinary tract infections occurred in five (11%) patients – 3 IDO and 2 NDO patient. No systemic BTX-A adverse events occurred. Mean post-injection PVR for patients that volitionally voided was 92 mL (range 0-450). 21 patients returned during the study time frame for repeat injection and reported a mean efficacy duration of 29 weeks (range 13 – 59).

Table 1 – BTX-A efficacy outcomes following “new” injection technique

<table>
<thead>
<tr>
<th></th>
<th>Median ICIQ Improvement</th>
<th>ICIQ Improvement ≥6</th>
<th>&gt;50% Subjective Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDO (n = 22)</td>
<td>13 (0-19)</td>
<td>91% (20/22)</td>
<td>86% (19/22)</td>
</tr>
<tr>
<td>IDO (n = 23)</td>
<td>6 (-1-19)</td>
<td>57% (13/23)</td>
<td>57% (13/23)</td>
</tr>
<tr>
<td>Total (n = 45)</td>
<td>9 (-1-19)</td>
<td>73% (33/45)</td>
<td>71% (32/45)</td>
</tr>
</tbody>
</table>

Conclusion: Our BTX-A injection technique seems to have similar efficacy and complications compared to the published results of the “standard” technique. A prospective comparative study is currently being performed to validate this technique.
FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) DURING URODYNAMIC TESTING (UDS) IDENTIFIES BRAIN STRUCTURES INITIATING VOIDING IN PATIENTS WITH MULTIPLE SCLEROSIS

Rose Khavari, MD¹; Christof Karmonik, PhD¹; Mike Shy, MD, PhD²; Jeff Anderson, PhD¹; Tom Potter, MS³; Tim Boone, MD, PhD¹

¹Houston Methodist Hospital, Houston, TX; ²Baylor College of Medicine, Houston, TX; ³Department of Bioengineering, University of Houston, Houston, TX

Presented By: Rose Khavari

**Introduction and Objectives:** Normal voiding is triggered by pontine micturition centre. Exploring brain areas in neurologic diseases is important to discern any altered control over the micturition cycle. Due to the technical challenges related to voiding in the scanner, most investigators have focused their efforts on the storage phase rather than the voiding phase. In this study, we seek to discover brain activity during initiation of voiding via fMRI in female subjects with Multiple Sclerosis (MS) and neurogenic bladder overactivity (NDO) and compare it to healthy normal controls.

**Methods:** Eighteen ambulatory female patients with MS and NDO underwent simultaneous fMRI and UDS. After motion correction, the Generalized Linear Model created individual fMRI activation maps at initiation of voiding. A high-resolution structural scan of the brain transformed the individual fMRI activation maps into Talairach space. From these transformed datasets, an average fMRI activation map (student t-test) was created, from which areas of significant activation were identified (p<0.05).

**Results:** Group analysis of patients at the initiation of micturition yielded prominent activity in the regions for executive function (frontal gyrus), motor control (putamen), emotional recognition, regulation, and memory (anterior and posterior cingulate, parietal lobules, precuneus), including area associated with anxiety and depression (subcallosal gyrus). Activity was also prominently observed in the thalamus, hypothalamus, and throughout the cerebellum (culmen, tonsil, declive, uvula, vermis). MS patients showed greater activity in these areas than healthy subjects, while the healthy subjects showed higher activity in the occipital lobe and temporal gyrus.

**Conclusion:** Our group analyses demonstrate for the first time the activation of a brain network consisting of regions for motor control, executive function, and emotion processing, as well as structures such thalamus, hypothalamus, and cerebellum at the initiation of micturition in patients with NDO caused by MS. Understanding the central neural processes involved in neurogenic bladder dysfunction is complicated and further investigations are needed.
Poster #NM21
SEVERITY OF LOWER URINARY TRACT SYMPTOMS PREDICT OVERALL NEUROLOGIC QUALITY OF LIFE AMONG PATIENTS WITH MULTIPLE SCLEROSIS
Aleksandar Blubaum, BA; Stephen Blakely, MD; Nicholas Westfall, MD; Augusto Miravalle, MD; Brian Flynn, MD
Aurora, CO
Presented By: Aleksandar Blubaum

Introduction and Objectives: Lower urinary tract symptoms, while common, are under reported in patients with MS. It is unclear what the impact of lower urinary tract symptoms due to MS is on the overall quality of life. We aim to define the incidence of lower urinary tract symptoms in patients with MS and their effect on neurologic quality of life.

Methods: We identified patients presenting to neurology clinic for routine follow up for multiple sclerosis. Each patient responded to validated questionnaires regarding urinary quality of life (MSQLI) and overall neurologic quality of life (NeuroQOL). Medical records were reviewed to assess for the presence of lower urinary tract symptoms. Overall neurologic quality of life was measured in the presence and absence of lower urinary tract symptoms and p-values were calculated using student’s t-test. Urinary quality of life score was correlated to overall neurologic quality of life score by calculating the Spearman’s rank correlation coefficient.

Results: Ninety-one patients were included in the study. All 91 patients completed the validated questionnaires. Eighty-five patients (93%) described the presence of at least one lower urinary tract symptom. The most common urinary tract symptoms were urgency (84%), frequency (69%), incontinence (54%), and retention (38%). Seventy-two patients reported urologic symptoms negatively impacted urinary quality of life. Presence of lower urinary tract symptoms negatively impacted overall neurologic quality of life (Figure 1). Urinary quality of life was predictive of the overall neurologic quality of life (-0.24, p=0.02).

Conclusion: Lower urinary tract symptoms are very common in patients with multiple sclerosis. These symptoms greatly impact and importantly predict the overall neurologic quality of life in patients with multiple sclerosis.
NEUROGENIC BLADDER DYSFUNCTION IN ADULTS WITH CEREBRAL PALSY: OUTCOMES FOLLOWING A CONSERVATIVE MANAGEMENT APPROACH

Daniel Liberman, MD, MSc, FRCSC¹; Robert A. Goldfarb, MD²; Andrew Pisansky, MD²; Joseph Fleck³, Patrick Hoversten³; Katherine J. Cotter, MD³; Jenna Katorski, FNP³; Sean P Elliott, MS, MD³
¹Metro Urology; ²University of Minnesota, Minneapolis, MN; ³University of Minnesota

Presented By: Daniel Liberman

Introduction and Objectives: Cerebral palsy (CP) is characterized by motor impairment following injury to the developing brain. Neurogenic bladder dysfunction (NGB) is estimated to affect at least one-third of children with CP, however, long-term follow-up is limited. We sought to describe the symptoms, sequela, and management of NGB in adults with CP.

Methods: We performed a retrospective chart review of adult CP patients between 2011 and 2014. Patients with prior bladder reconstruction or catheterization-based bladder drainage were excluded. Severity of CP was determined using the Gross Motor Function Classification System (GMFCS). A conservative evaluation and treatment paradigm was utilized. Non-invasive treatments were encouraged; specifically, clean intermittent catheterization (CIC), which is often not feasible, is avoided unless patients develop urinary retention, hydronephrosis, or refractory lower urinary tract symptoms (LUTS) and/or incontinence.

Results: We identified 121 patients with median age of 25. 61/121 (50%) had severe CP (GMFCS V). There were 28/121 (23%) patients who failed non-invasive management as defined by hydronephrosis (9), persistent urinary retention (10), and refractory LUTS/incontinence (9); urethral CIC was poorly tolerated. 25% of all patients had evidence of urolithiasis during study period. Surgical intervention was rare and associated with significant morbidity.

Conclusion: Symptoms of NGB in adults with CP are variable and motor limitations may prevent increased utilization of CIC. A conservative approach to evaluation and treatment was successful in over 75% of patients. Permissive chronic urinary retention and urolithiasis may be acceptable in the absence of symptoms. Surgical intervention was rarely indicated and should be reserved for select individuals.
Poster #NM23
THE EFFECT OF INTRA-DETRUSOR DYSPORT® (ABOBOTULINUMTOXIN-A) INJECTION ON PATIENTS WITH SPINAL CORD INJURY AND LONG TERM SUPRAPUBIC CATHETER
Sachin Malde, FRCS¹; Javed Burki, MRCS²; Ismail Omar, MRCS²; Mahreen Pakzad, FRCS³; Jeremy Ockrim, FRCS³; Julian Shah, FRCS³; Tamsin Greenwell, FRCS³; Rizwan Hamid, FRCS³
¹University College London Hospitals, London; ²Spinal Injuries Unit, Stanmore; ³University College London Hospitals
Presented By: Sachin Malde

Introduction and Objectives: We studied the effect of intra-detrusor dysport (I.D.D) injection on patients with spinal cord injury and long term suprapubic catheter (SPC), who had neurogenic bladder dysfunction (NBD) with urinary incontinence.

Methods: In this retrospective study of 30 patients of spinal cord injury on long term suprapubic catheter with urinary incontinence secondary to neurogenic detrusor over activity (NDO)/ loss of compliance (LOC) despite maximum dose of anticholinergic medication & were treated with I.D.D. injection to control their symptoms of urinary incontinence. In this study, 18 patients were male and mean age of the patients was 51.53 years (range17-86). Male to female ratio was 1.5:1. All patients had prior documented NDO/ (LOC) on video-urodynamics (VCMG) secondary to either spinal cord injury /spinal cord deformity/spinal degenerative disease. They were followed up with repeat urodynamic study at variable intervals to monitor their bladder functions. The results of VCMG done before the first I.D.D. injection were compared with the one after their last I.D.D. injection.

Results: All patients were operated as day case & no patient had any intra or post-operative complications. All the 30 patients reported improvement in their symptom of urinary incontinence after the I.D.D. injections. The mean time interval between I.D.D. injection & urodynamic study was 8.88 months (range 4-18). The average dosage of dysport was 896.55 I.U. (range500-1000). The VCMG results comparison revealed that mean maximum detrusor pressure (MDP) increased by 4.23cm.of H2O i.e. from 32.31cm of H2O (range7-87) to 36.89cm.of H2O (range6-95). This was statistically not significant (p value0.439). The mean decrease in maximum cystometric capacity (MCC) was2.16cc i.e. from 170.93cc (range 43-395) to 168.68cc (range 31-438). However, this was not statistically significant (p value 0.939). The bladder management of all the patients remained unchanged after I.D.D. injection.

Conclusion: We conclude that I.D.D. injections is beneficial in controlling symptoms of urinary incontinence secondary to NDO/LOC, in patients with spinal cord injury with long term SPC, despite maximum dose of anticholinergic medication, but it does not result in significant changes in VCMG findings.
Poster #NM24
CONTEMPORARY TREATMENT OF DETRUSOR SPHINCTER DYSSYNERGIA: A SYSTEMATIC REVIEW
Hanhan Li, MD; Alex Borchert, BS; Humphrey Atiemo, MD
Vattikuti Urology Institute, Henry Ford Health Systems, Detroit, Michigan
Presented By: Hanhan Li

Introduction and Objectives: Detrusor sphincter dyssynergia (DSD) can present in patients with neurogenic bladder due to spinal cord disease but no treatment guidelines currently exist. We sought to systematically review the contemporary literature to determine outcomes of treatments for DSD.

Methods: Ovid Medline, Embase, Pubmed, and Web of Science were searched within the last 10 years for “detrusor sphincter dyssynergia”. Results were independently reviewed by two co-authors for inclusion using the PRISMA guidelines. Exclusion criteria were: pediatric populations, no full text availability, reviews, non-clinical focus, non-English language and case reports. Papers were included only if DSD was described in the methods or results section.

Results: 515 articles were screened to yield 22 full text articles. The majority were retrospective studies (15), five were prospective non-randomized studies, and two studies were prospective, randomized trials. Twelve studies (55%) defined DSD and 11 (50%) described electromyography in the diagnosis of DSD. A total of 830 patients (527 male, 104 female, 199 not specified) had DSD from spinal cord injury (413), multiple sclerosis (104), multiple system atrophy (33), and not specified (280). Treatments included Botulinum A injections into the external sphincter (7 studies, mean follow-up time: 1-6 months, reported success rates: 64-100%) or bladder (3, 3-6 months, 44-76%), urethral stents (4, 10-240 months, 91%), sphincterotomy (2, 12-76 months, 48-85%), other surgical interventions (2, 3-60 months, 81-87%), alpha-blockers (2, 21-60 months, 44-76%), anticholinergics (1, 3 months, success rates not described), sacral neuromodulation (1, 49 months, 60%), and anal stretch (1).

Conclusion: There is a lack of standardization in the diagnosis and treatment outcomes of DSD. Intraspincteric or detrusor Botulinum toxin type A injection appears to be a primary intervention strategy after failed conservative therapies such as intermittent catherization or medications. More invasive treatments such as sacral neuromodulation and sphincterotomy have also shown relatively high success rates while urethral stent placement has associated high complication and failure rates.
Male Incontinence/Urodynamics Podium Session
Thursday, February 25, 2016
5:30 p.m. – 7:00 p.m.
Moderators: Ahmed M. El-Zawahry, MD, MSC
Arthur P. Mourtzinos, MD, MBA

Podium #9
DEVELOPMENT OF A NOVEL ARTIFICIAL URINARY SPHINCTER (AUS): THE PRECISION MEDICAL DEVICES (PMD) FLOW CONTROL DEVICE (FCD) FOR MANAGEMENT OF SPHINCTERIC DEFICIENCY USING BLUETOOTH TECHNOLOGY
Angelo Gousse, MD¹; Peter Sayet²; Christopher Gomez, MD³
¹Miramar, FL; ²Ft. Lauderdale, FL; ³University of Miami Department of Urology, Miami, FL
Presented By: Christopher Gomez

Introduction and Objectives: PMD has developed a new AUS design to improve patient satisfaction and allow for physician telemetry via the implementation of new technology. The FCD was tested using six previous prototypes through female canine survival studies in a total of 32 subjects before establishing this current model. The FCD fluid-free device is composed of three solid components: 1) Control Pack 2) Valve assembly 3) Activator. The control pack consists of a printed circuit board, stepper motor and a nickel-cadmium cell in a titanium casing. The valve assembly consists of a cable link, plunger and urethral cuff. The control pack opens and closes the plunger via a drive assembly which adjusts the closure pressure magnitude with 10 different settings, allowing post-implant adjustments (via telemetry) without the need for re-operation. The handheld activator communicates with the implanted control pack via Bluetooth technology. The activator allows for either the physician or patient to communicate with the FCD for daily operations or diagnostics. Daily operations of the device are recorded and remote tele-monitoring is available.

Methods: The current protocol consists of implantation of the newest prototype into 9 female mongrel dogs. The study length begins at 12 weeks for the initial animal and is extended to a one-year follow-up for the last two animals. There was no attempt to make the animals incontinent. Evaluations include renal ultrasound for each animal as well as weekly CBC, BMP and UA. Software and device performance is evaluated by telemetrically acquired data.

Results: The successful implantation of 32 previous devices has allowed the development of the newest Bluetooth telemetrically controlled AUS. We have currently implanted four out of eight animals. Successful telemetry has been established for all implants. Three animals developed urinary retention. Two episode of urinary retention was related to tissue overgrowth in the valve cap resulting in urethral kinking and the second episode was due to a software malfunction causing elevated closure pressure on the urethra. This was identified through post hoc analysis of the telemetry data. No infections or erosions of the device were encountered. The implanted devices have undergone over 3,300 activation cycles and 130 status reports.

Conclusion: The successful development of a fluid-free remotely controlled AUS that allows for post-implant adjustable settings and remote tele-monitoring capabilities is possible.
OBESITY DOES NOT AFFECT SUCCESS OF THE TRANSOBTURATOR MALE SLING FOR POST-PROSTATECTOMY INCONTINENCE
Katherine Brewer, MD; Miriam Greenstein, MD; Neil Grafstein, MD
Icahn School of Medicine at Mount Sinai, New York, NY
Presented By: Katherine Brewer

Introduction and Objectives: Little is known in current literature regarding predictors of long-term success of the transobturator male sling (TOMS). The objective of this study was to compare outcomes of TOMS for post-prostatectomy stress incontinence (PPI) based on body-mass index (BMI).

Methods: A retrospective review was performed of 108 post-prostatectomy patients who underwent TOMS insertion at a single-institution from 2007-2015. Failure was defined as use of ≥1 pads per day (PPD). Success was defined as “pad-free” or wearing one “safety-liner” per day. Patients were separated into three groups based on body weight: ideal (≥18 or <25 kg/m²); overweight (≥25 or <30 kg/m²); or obese (≥30 kg/m²). Statistical analysis was performed using the chi-squared test. Linear regression and multivariable logistic regression were also performed.

Results: Success rate was 77.4% with a mean and median follow-up of 17.1 and 10.3 months respectively. Pre-operative characteristics were similar between success and failure groups, including patient age (p= 0.54), BMI (p= 0.41), patients who underwent pelvic radiation (p= 0.18), and ASA class (p= 0.98) (Table 1). No statistical difference in success was seen when comparing ideal weight to overweight patients (OR 0.493, 95% CI 0.160-1.521) or ideal weight to obese patients (OR 0.448, 95% CI 0.110-1.821). Average operative times (minutes) were statistically different among groups: 54.4, 63.0, and 71.3 for ideal, overweight and obese respectively (p <0.001). On linear regression, obesity significantly predicted operative time (p<0.001, R² =0.14), but BMI and estimated blood loss were not related (p=0.10, R²=0.0275). Using multivariable regression, there was no difference in success rate when controlling for specific characteristics (p=0.166).

Conclusion: Although technically more challenging as verified with increased operative times, success rates of male sling surgery did not differ based on BMI. Therefore, the presumed increased intra-abdominal pressure in obese patients may not be effectively transmitted to the bladder, urethra, or sphincter to cause a difference in outcomes. TOMS remains a viable option for obese patients with PPI.
THE CORRELATION BETWEEN RETROGRADE LEAK POINT PRESSURE AND 24-HOUR PAD WEIGHT FOR MEN WITH POST PROSTATECTOMY INCONTINENCE

Eskinder Solomon, PhD; Marco Spilotros, MD; Sachin Malde, MBBS, FRCS; Mahreen Pakzad, MBBS, FRCS; Rizwan Hamid, MBBS, FRCS; Tamsin Greenwell, MD, FRCS; Jeremy Ockrim, MD, BSc (Hons), FRCS
Institute of Urology at UCLH, London, UK
Presented By: Eskinder Solomon

Introduction and Objectives: To assess the correlation between retrograde leak point pressure (RLPP) and 24-hour pad weight (24PW) in men with post-prostatectomy incontinence.

Methods: We performed RLPP and 24PW measurements on 61 patients with post-prostatectomy stress urinary incontinence (SUI). We examined the relationship of RLPP and 24PW. We also reviewed the urodynamic and clinical data of these patients to explain our findings.

Results: The mean age was 69.5 years (SD + 7.4, range: 51-87). The mean RLPP was 36.8 cmH2O (SD +/- 15.3, range: 9-76), the mean 24h pad-weight was 499g (+ 677g, range: 16.5g-3177g). There was a strong and significant negative correlation between RLPP and 24h pad-weight (r=0.56, p<0.0001). RLPP was a strong predictor of cases of mild/moderate (<400g) and severe (>400g) incontinence (Figure 1). Patients with RLPP ≤ 30 had significantly higher 24h pad weight (mean 825g, median 768g) when compared with patients with RLPP > 30 (mean 257.8g, median 100g), p < 0.0001.

Conclusion: There is a good correlation between RLPP and 24PW. RLPP can distinguish between mild/moderate and severe levels of incontinence. RLPP could be used as an objective and more reliable substitute to pad weight to objectify and stratify SUI in post-prostatectomy patients. Figure 1) Boxplot showing that patients with severe incontinence had statistically significantly lower RLPP than patient with mild or moderate incontinence.
Podium #12
CAN FILLING PHASE URODYNAMIC PARAMETERS PREDICT THE SUCCESS OF THE BULBAR ARTIFICIAL URINARY SPHINCTER IN TREATING POST-PROSTATECTOMY INCONTINENCE?
Eskinder Solomon, MSc¹; Rajan Veeratterapillay, MB, BS, MD²; Sachin Malde, MB, BS, MSc¹; Christopher Harding, MB, ChB, MD²; Tamsin Greenwell, MB, ChB, MD¹
¹UCLH, London, UK; ²Freeman Hospital, Newcastle Upon Tyne, UK
Presented By: Eskinder Solomon

**Introduction and Objectives:** To evaluate whether filling phase urodynamic parameters can predict the success of the artificial urinary sphincter (AUS) in treating post-prostatectomy incontinence (PPI).

**Methods:** We reviewed the pre-AUS urodynamics of 99 patients with PPI at two tertiary referral centres. We documented whether detrusor overactivity (DO) was demonstrated and quantified the peak DO pressure (PDO), capacity and compliance (C). We defined success as patient reported continence or only using one safety pad. Statistical analysis was performed using Mann-Whitney U, Chi-square and binary logistic regression analyses.

**Results:** 68% of patients had a successful outcome. The mean compliance for the "success" and "failure" group was 112.3ml/cmH2O (+ 119.7) and 34.1ml/cmH2O (+ 36.2) respectively. 55% of patients in the "failure" group demonstrated DO (PDO=36.2+18.2cmH20). In the success group, only 15% of patients had DO (PDO=15.6+6.3cmH2O). The differences between the two groups in terms of presence of DO, PDO and compliance were statistically significant (all p <0.01). There was however no statistical difference between the mean cystometric capacities of patients in the two outcome groups. 13/18 (72%) patients that had radiotherapy had a poor outcome. In contrast, only nine (15%) patients in the "success" group had received radiotherapy. These results were used to develop a nomogram for the probability of AUS success (Figure 1: A nomogram representing the probability of AUS success based on the compliance index C value and PDO. As indicated by the colour bar on the right, the probability of success can be deduced to range from <10% to >90% for a pair of C and PDO values.).

**Conclusion:** Compliance and PDO are predictors of outcome following AUS implantation for PPI. We have developed a nomogram that may be used to determine an individualized likelihood of AUS success using the compliance index and PDO from the pre-AUS urodynamics.
TRENDS IN UTILIZATION OF SURGICAL THERAPY FOR POST-PROSTATECTOMY STRESS URINARY INCONTINENCE
Yahir Santiago-Lastra, MD; Bahaa S. Malaeb, MD
University of Michigan Department of Urology, Ann Arbor, MI
Presented By: Yahir Santiago-Lastra

Introduction and Objectives: The adoption of male perineal sling (MPS) procedures has been though to increase steadily. Our primary aim was to look at the actual trends in utilization of the MPS and artificial urinary sphincter (AUS) using data from the vendor.

Methods: We used sales and revenue unit data provided by American Medical Systems (AMS, Minnetonka, MN, USA) to retrospectively review the number of AUS (AMS 800) and MPS (Advance Male Sling System, InVance Male Sling System) that were implanted in males with post-prostatectomy incontinence (PPI) nationwide for the years of 2001 – 2013. Sales results for the MPS were reported as growth rates in utilization, by using this formula: (Present utilization value – Initial year utilization value) / (Initial year utilization value). These are represented as percent growth rates by year. To analyze regional variation, we excluded devices implanted for revision cases. The population of each state or region was used to measure regional standardized MPS utilization rate (per 100,000 population). Urologist density data was obtained from the most recent AUA census.

Results: We identified 46,939 original AUS units implanted with patient identification forms (PIFs) reported from 2000-2013. A regression model for the effect of different age groups on the rate of utilization demonstrated that increasing age was associated with an increased rate of utilization of the AUS, with robust yearly increase in utilization for both the 60-69 age group and the 70+ age group, with a stable rate of utilization for men under age 59 (Adjusted R square=0.985, p<0.001). For the MPS, there was a peak in utilization in year 2009 that correlates significantly with utilization rates for the Advance sling. Since 2009, the growth rate in MPS utilization has decreased significantly. Urologist density correlates with MPS utilization rates by state (p<0.002). No significant decline in overall AUS utilization was observed with the introduction of different male sling products.

Conclusion: AUS utilization in the treatment of PPI continues to increase despite introduction of various MPS devices, particularly for older men. Areas with a greater urologist density are associated with greater MPS utilization.
A RANDOMIZED COMPARATIVE STUDY CORRELATING COUGH STRESS TEST WITH URODYNAMICS AND 24 HOUR PAD TEST IN THE EVALUATION OF STRESS URINARY INCONTINENCE

Joseph Henderson, IV, MD¹; Sarah Kane, MD²; Jeffrey Mangel, MD²; Elias Kikano, BS¹; Jorge Garibay, MD²; Robert Pollard, MD²; Sangeeta Mahajan, MD¹; Adonis Hijaz, MD¹

¹Division of Female Pelvic Medicine and Reconstructive Surgery, University Hospitals, Case Western Reserve University, Cleveland, OH; ²MetroHealth, Cleveland OH

Presented By: Joseph Henderson, IV

Introduction and Objectives: Using urodynamic testing (UDS) as the gold standard, we evaluated the diagnostic accuracy of the cough stress test (CST) performed varying patient’s posture and bladder volume for diagnosing stress urinary incontinence (SUI) and assessed the correlation between CST with 24-hour pad test in the evaluation of SUI.

Methods: Women presenting to outpatient specialty clinics with urinary incontinence and recommended by the evaluating staff to undergo UDS were recruited. Patients recorded a three-day voiding diary and 24-hour pad test. Patients were randomized to four groups: Group A underwent CST with a comfortably full bladder. Group B underwent CST with an empty bladder. Group C underwent CST with a bladder infused with 200cc of saline. Group D underwent CST with a bladder filled with half functional capacity as determined from the patient’s voiding diary. A CST was performed for each patient in the supine and standing position, with the sequence randomly assigned. A positive CST was determined as any observed leakage of urine. A positive UDS was determined as any observed leakage of urine when the patient was instructed to cough or valsala. Diagnostic accuracies were compared among groups. Confidence intervals for sensitivity and specificity were calculated using the Agresti-Coull method. The RROC package in R was used to plot the Receiver Operator Characteristic.

Results: From March 2011-March 2015, 139 women were enrolled in the study. There were no significant demographic differences between the CST groups. Table 1 illustrates no statistically significant evidence that the sensitivity or specificity of one CST differed from the others (p-value: 0.14-0.68). Overall the pad test for those with UDS defined SUI appeared to have no predictive value. The trend direction was that low pad weights were associated with SUI with the area under the curve 0.6 (95% CI: 0.49, 0.71; p-value: 0.08).

Conclusion: Cough Stress Tests in their varied forms are accurate and specific. There appears to be no difference in sensitivity or specificity if the tests are performed standing or supine. The 24 hour pad test did not appear to correlate with SUI and did not improve diagnostic accuracy when used in conjunction with the CST.
Podium #15
CORRELATION OF REAL-TIME BLADDER SENSATION DURING URODYNAMICS AND NON-INVASIVE ACCELERATED HYDRATION IN PARTICIPANTS WITH URINARY URGENCY
John Speich, PhD¹; Anna Nagle, PhD¹; David Le²; Peter Ghamarian, BS³; Andrew Colhoun, MD³; R. Wayne Barbe, PhD⁴; Paul Ratz, PhD⁵; Adam Klausner, MD⁶
¹Department of Mechanical & Nuclear Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ²Department of Biomedical Engineering, Virginia Commonwealth University School of Engineering, Richmond, VA; ³Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁴Department of Emergency Medicine, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁵Department of Biochemistry & Pediatrics, Virginia Commonwealth University School of Medicine, Richmond, VA; ⁶Department of Surgery/Division of Urology, Virginia Commonwealth University School of Medicine, Richmond, VA; Department of Surgery/Division of Urology Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA
Presented By: Anna Nagle

Introduction and Objectives: The aim of this study was to compare real-time bladder sensation during urodynamics (UD) and accelerated hydration studies in participants with urinary urgency.

Methods: Distinct groups of volunteers with urgency (defined by ICIq-OAB question 5a≥3) were prospectively enrolled in an IRB-approved accelerated hydration study and an IRB-approved UD study. The hydration group was asked to drink 2L of Gatorade G2 and complete two fill/void cycles. Post void residual (PVR) was estimated using BladderScan. Both groups recorded standardized verbal sensory thresholds and real-time sensation on a 0 to 100% scale using a novel “sensation meter.”

Results: In the hydration group, fill duration decreased and voided volume increased in fill 1 vs. fill 2 (54±4 min vs. 19±2 min & 242±57 ml vs. 308±52 ml, p<0.05, n=9). UD duration (9.4±1.4 min, n=7) was shorter than either fill in the hydration group; however, the UD fill volume (389±37 ml) was not statistically different from the total volume (void + PVR) of either fill for the hydration group (278±64 ml & 359±82 ml). Estimated volumes for sensory thresholds of First Sensation, First Desire, and Strong Desire in fill 1 (88±29 ml, 177±49 ml, & 253±47 ml, respectively) were not different from identical thresholds in the UD group (63±31 ml, 123±42 ml, & 220±45 ml). The UD sensation-volume curve was not statistically different from either fill for the hydration group at sensation ≥ 30% (Figure 1).

Conclusion: Participants with urinary urgency showed increased voided volume in fill 2 of the hydration study despite faster filling, which is inconsistent with data from normal subjects (not shown) and with viscoelastic material behavior. This suggests that bladders in subjects with urgency may undergo altered, acute changes in bladder compliance, tone and/or sensitization. This study demonstrates that a non-invasive hydration protocol to characterize bladder sensation in participants with urgency provides data consistent with UD studies and may reveal dynamic characteristics of bladder behavior not observed during a single UD fill. This technique may prove useful in the eventual sub-categorization of different forms of Overactive Bladder.
Podium #16
ISOMETRIC DETRUSOR CONTRACTILE RESERVE PREDICTS IMMEDIATE RECOVERY OF SPONTANEOUS VOIDING AFTER TRANSURETHRAL RESECTION OF PROSTATE
Amy D. Dobberfuhl, MD; Craig V. Comiter, MD
Stanford University, Department of Urology
Presented By: Amy Dobberfuhl

Introduction and Objectives: Detrusor underactivity (DU) is gaining recognition as an important cause of urinary retention. Maximum isometric detrusor contraction pressure (Piso) obtained using the mechanical stop test during voiding urodynamics is a useful way to measure detrusor contractile reserve strength (Pres = Piso - Pdet@Qmax). We report our single surgeon experience in men with urodynamically proven bladder outlet obstruction that subsequently underwent transurethral resection of the prostate (TURP).

Methods: We identified 90 men who underwent TURP at our institution from September 2014 to August 2015 and retrospectively reviewed the records of 43 men with preoperative urodynamic evaluation. Patient demographics, free uroflow, urodynamic tracing and postoperative information were collected. Piso was obtained in all men during the voiding phase of urodynamics. Primary outcome was postoperative voiding function: spontaneous void versus indwelling or intermittent catheterization.

Results: All 43 men (mean age 68 years) had urodynamic tracing and follow-up data (mean 77 days) available for statistical analysis. DU was present in 13 men (30%) with a mean urodynamic: BCI 78 (IQR 70-95) and BOOI 61 (IQR 48-76). Preoperative spontaneous voiding was present in 27 men (63%) with a mean free uroflow: Qmax 8.8 mL/s (IQR 6.0-11.0), voided volume 149 mL (IQR 50-303), PVR 139 mL (IQR 0-175) and a mean urodynamic: Pdet@Qmax 102 cmH2O (IQR 75-107), Qmax 6.2 mL/s (IQR 4.0-7.5), Piso 124 cmH2O (IQR 86-140). In the remaining 16 men who were catheter dependent, all were able to void a small amount (mean 102 mL, IQR 19-162) at time of urodynamics with a mean: Pdet@Qmax 89 cmH2O (IQR 68-105), Qmax 3.6 mL/s (IQR 1.0-4.3), Piso 99 cmH2O (IQR 69-121). Following TURP 67% of men voided spontaneously at discharge and 95% at most recent follow-up. On receiver operator analysis (see Figure), detrusor contractile reserve (Pres) was a significant predictor of immediate spontaneous void after TURP (AUC=0.681, p=0.035).

Conclusion: In men considering TURP, an elevated isometric detrusor reserve (Pres = Piso - Pdet@Qmax) appears to be associated with immediate postoperative spontaneous voiding and should be incorporated into the operative decision algorithm.
Podium #17
BLADDER OUTLET PROCEDURES ARE AN EFFECTIVE TREATMENT OPTION FOR PATIENTS WITH URODYNAMICALLY-CONFIRMED DETRUSOR UNDERACTIVITY WITHOUT BLADDER OUTLET OBSTRUCTION
Bradley Potts, BS; Michael Belsante, MD; Ngoc-Bich Le, MD
Duke University Medical Center, Department of Surgery, Division of Urology, Durham, NC
Presented By: Bradley Potts

Introduction and Objectives: Detrusor underactivity (DU) is an important cause of bladder emptying dysfunction, and it is only distinguished from bladder outlet obstruction (BOO) with pressure-flow urodynamic studies (UDS). Because sparse published information exists regarding the management of DU patients without associated BOO, we set out to investigate the surgical procedures that have been used for such patients and their associated outcomes.

Methods: We performed an IRB approved retrospective review of patients who underwent UDS at our institution (1996 – 2014). We included males age >18 years with emptying symptoms, bladder contractility index <100, and BOO index <40. We excluded the following known causes of DU: concomitant BOO on UDS, diabetes, pelvic radiation, and neuropathology (stroke, congenital/degenerative disease, trauma/surgery). We defined success as no future retention or symptoms requiring urinary catheterization/subsequent operations.

Results: We identified 139 patients with median follow-up (FU) of 10 mos. (IQR = 1 – 36) after UDS diagnosis. Most patients were managed with either medication alone (37%) or urinary catheterization +/- medication (30%). Only 21 patients (15%) received bladder outlet surgery (14 TURPs, 6 KTPLAPs, and 1 bladder-neck incision). Types of DU in this group included detrusor hyperactivity with impaired contractility (10, 48%), isolated DU (6, 29%), and acontractile bladder (AB) (5, 24%). Success was achieved in 18 (86%) of patients undergoing bladder outlet procedures with postoperative FU of 6 mos. (IQR = 1 – 18). Failure occurred in 3 cases: 1) an isolated DU patient with UTI and retention 10 days post-op; 2) an AB patient with UTI and retention 15 days post-op; and 3) an isolated DU patient with fecal impaction and retention three months, postoperatively. In the latter two cases, patients resumed volitional voiding without further difficulty. Using the same methods, we also identified five patients with DU who then had radical prostatectomy for prostate cancer. In this group, success occurred in all five (100%) cases with FU 45 months. (IQR = 6 – 81).

Conclusion: Though infrequently used, bladder outlet procedures are an effective treatment option for patients with UDS-diagnosed DU without BOO. We recommend considering the procedure in all patients with medication-refractory DU. Our post-prostatectomy results may be considered when discussing treatment options with prostate cancer patients who also have DU.
Female Urology/Incontinence Moderated Poster Session

Thursday, February 25, 2016
5:30 p.m. – 7:00 p.m.
Moderators: Kathleen C. Kobashi, MD, FACS
Lara MacLachlan, MD

Poster #M10
THE USES AND OUTCOMES OF THE MARTIUS FAT PAD IN FEMALE UROLOGY – A 10 YEAR EXPERIENCE
Marco Spilotros, MD; Sachin Malde, MB, ChB, MSc; Mahreen Pakzad, MB, BS, MD; Rizwan Hamid, MB, ChB, MSc; Jeremy Ockrim, MB, ChB, MD; Tamsin Greenwell, MB, ChB, MD
UCLH, London, UK
Presented By: Marco Spilotros

Introduction and Objectives: To assess the indications, morbidity, efficacy and outcomes of Martius fat pad (MFP) interposition in reconstructive female urology.

Methods: 159 women with MFP interposition as part of their primary procedure between 02/09/05 and 02/07/2015 were identified on a prospectively acquired database. Patient demographics and the indications for MFP interposition along with the outcomes of their primary procedures and short and long-term complications related to the MFP, along with patient reported perception of post-operative appearance, were noted.

Results: The results are listed in the table below. The majority of patients rated the post-operative appearance of their labia as good or excellent (79%). No patients felt the post-operative appearance was unsatisfactory. There were two post-harvest labial haematoma (1.25%), 1 labial wound infection in an overweight diabetic patient (0.625%) and no other significant short or long-term complications.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Number (%)</th>
<th>Primary Proceedure Outcome</th>
</tr>
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<tbody>
<tr>
<td>Urethral Diviculectomy</td>
<td>74 (47)</td>
<td>100% cure</td>
</tr>
<tr>
<td>Onset USUI</td>
<td></td>
<td>15% new</td>
</tr>
<tr>
<td>Vaginal VVF/UVF Repair</td>
<td>43 (27)</td>
<td>94% cure</td>
</tr>
<tr>
<td>Urethral Erosion of Tape</td>
<td>24 (15)</td>
<td>100% cure</td>
</tr>
<tr>
<td>Recurrent USUI</td>
<td></td>
<td>42% new</td>
</tr>
<tr>
<td>Mid-Urethral Erosion of Tape</td>
<td>2 (1)</td>
<td>100% cure</td>
</tr>
<tr>
<td>Vaginal Closure of Bladder Neck</td>
<td>4 (3)</td>
<td>100% cure</td>
</tr>
<tr>
<td>Female Urethroplasty</td>
<td>12 (8)</td>
<td>100% cure</td>
</tr>
<tr>
<td>Onset USUI</td>
<td></td>
<td>0 % new</td>
</tr>
</tbody>
</table>

Conclusion: MFP interposition is associated with good cosmesis and a very low complication rate (<2%). It appears to lower new onset post procedure USUI, prevent erosion in the ‘fragile’ urethra and improve outcomes following repair of post-surgery VVF/UVF. MFP is a versatile and effective tool in the female urologists armamentarium.
INTRODUCTION AND OBJECTIVES: There is a lack of data describing the current state of stress urinary incontinence (SUI) procedures in academic centers. Urologists, gynecologists, and urogynecologists perform these operations, but the relative volume each group accounts for is unknown. The purpose of this study was to evaluate the distribution of cases in academic centers between specialties and associated patient characteristics.

METHODS: A hospital consortium database was used to identify patients treated surgically for SUI between 2009 and 2014. Patient and surgeon variables were evaluated. Patient variables (age, region, insurance, race) and surgeon volume were analyzed. Sub-analysis was conducted to determine concomitant prolapse repairs.

RESULTS: Of the 50,315 stress urinary incontinence procedures performed, 22% were performed by urologists. Overall volume dropped 39% and mean surgeon volumes for all three groups decreased with time. Average median volume for urogynecologists (29/year) differed from both urologists (3/year) and non-urogynecologists (2/year). There was a significant difference in rate of concomitant prolapse repairs performed by urogynecologists (56%), gynecologists (54%) and urologists (26%).

CONCLUSION: This data portrays the changing pattern of SUI procedure practice in academic centers. Academic urologists are performing less than 25% of SUI procedures, with an overall decline in number of procedures across all specialties. Urogynecologists and gynecologists are performing a significantly higher proportion of concomitant prolapse repairs.
Midurethral slings (MUS) are the most common surgical treatment for women with stress urinary incontinence (SUI). We sought to determine complications and risk of readmission in a nationally representative database stratified by the specialty of the performing surgeon.

Methods: The American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database from 2006-2013 was queried for MUS excluding concurrent reconstructive or gynecologic procedures. We assessed baseline characteristics, 30-day perioperative outcomes and 30-day readmission. Logistic regression analysis identified risk factors for the most frequent complications.

Results: 7193 women underwent MUS, of which 3430 (47.7%) and 3763 (52.3%) were performed by urologists and gynecologists, respectively. Patients of urologists were older, had higher ASA class and Frailty Index, and were more likely diabetic (all p<0.05). Patients of gynecologists were more likely to have resident involvement compared to urologists (16.8% vs. 11.0%, p<0.001). Mean operative time was shorter for urologists compared to gynecologists (35.2 +/- 29.7 vs 40.4 +/- 38.0 min, p<0.001). The overall 30-day complication rate was 3.48%, with most common complications being urinary tract infection (UTI) (2.89%) and surgical site infection (SSI) (0.28%). UTI occurred in 2.19% vs. 3.56% (p = 0.001) of the urologic and gynecologic patients, respectively. After adjusting for frailty, BMI, steroid use, age, operative time and residency involvement, gynecologic performed surgery incurred an increased risk of UTI (odds ratio 1.68 (CI 1.25-2.25), p=0.001). Seven (0.05%) patients required intra-operative bladder repair. Sixty five (0.90%) patients were readmitted within 30 days, most commonly due to urinary retention. Patients of urologists were more likely to be readmitted 1.17% vs. 0.66% (p=0.025). No revisions were performed due to infection or pain within 30 days but 12 (0.17%) patients underwent sling revision for urinary obstruction. There were 2 (0.03%) mortalities in the cohort, one from cardiac complication and another of unknown cause.

Conclusion: To our knowledge, we present the largest American cohort of MUS 30 day outcomes to date. Overall, morbidity is low. UTI is the most common complication, and occurs at increased frequency for patients of gynecologists. Future study would benefit from functional voiding results and assessing peri-operative differences between specialists.
Poster #M13
URINARY INCONTINENCE AFTER SUBURETHRAL MESH REMOVAL REQUIRING ANTI-INCONTINENCE PROCEDURES
Patkawat Ramart, MD; A. Lenore Ackerman, MD, PhD; Seth A. Cohen, MD; Ja-Hong Kim, MD; Shlomo Raz, MD
David Geffen School of Medicine at UCLA, Los Angeles, CA
Presented By: A. Lenore Ackerman

Introduction and Objectives: Excision or removal of mid-urethral sling mesh is an appropriate option for patients with mesh complications, such as chronic pain or mesh extrusion. While studies document improvement in presenting symptoms after revision/removal, these procedures can create additional challenges, such as recurrent stress urinary incontinence (SUI). As SUI is often why patients originally sought treatment, we sought to determine the risk of recurrent SUI after suburethral sling removal to aid in pre-operative counseling.

Methods: After IRB approval, we conducted a retrospective cohort study of patients with complications of synthetic mid-urethral slings in whom transvaginal retropubic vaginal mesh (RVM) or transobturator mesh (TOM) removal was performed between January 2000 and December 2013. Patients with preoperative incontinence, other vaginal mesh, prior mesh revision/excision, existing SUI, prior pelvic radiation, or fistula were excluded. Only patients with follow-up detailing continence status within one year of mesh removal were examined. Patients with recurrent SUI confirmed by cystoscopy and urodynamics who had failed initial management with behavioral modifications and medication were offered anti-incontinence surgery.

Results: Of 278 mid-urethral sling removals, 117 (70 RVM and 47 TOM) met inclusion criteria. Demographic data, including age, BMI, and menopausal status, were comparable between groups. Presenting symptoms were also similar, except for a trend towards retention for RVM (18.6% vs. 8.5%, P=0.130) and increased groin (12.9% vs. 31.9%, P=0.012) and leg (5.7% vs. 27.7%, P=0.001) pain for TOM. Both groups had similar extrusions (30.0% and 31.9%). Chronic pain was the reason for mesh removal in 80% of cases. In one-year follow up, 38.6% of RVM and 34.0% of TOM requiring an anti-incontinence procedure. Total sling mesh removal was performed in 51.4% of RVM and 51.1% of TOM cases without differences in post-operative incontinence.

Conclusion: Mesh excision/removal improves most mid-urethral sling complications, but can cause additional problems, such as recurrent SUI. In this continent population with sling complications, approximately 1/3 developed significant SUI within 1 year of mesh removal requiring anti-incontinence surgery, regardless of the amount removed. Thus, total mesh removal can be performed when significant suprapubic or groin/hip pain is present in patients with RVM or TOM, respectively, without fear of increasing SUI risk.
IS THERE A DIFFERENCE IN OUTCOME BETWEEN EARLY VERSUS DELAYED REMOVAL OF SUBURETHRAL MID-URETHRAL SLING?

Himanshu Aggarwal, MD¹; Jeannine Foster ²; Nirmish Singla ²; Feras Alhalabi ²; Gary E. Lemack ²; Philippe E. Zimmerm²
¹UT Southwestern Medical Center; ²UT Southwestern Medical Center, Dallas, TX
Presented By: Himanshu Aggarwal

Introduction and Objectives: A common thinking is that women who undergo delayed suburethral synthetic sling removal (SSR) will have a worse outcome. We evaluated the differences in presentation and outcomes of early (<5 years) versus delayed (> 5 years) SSR in women with mid-urethral sling (MUS) complications requiring surgical removal.

Methods: Reviewed a prospectively maintained, institutional review-board approved, database of consecutive non-neurogenic women who underwent SSR for MUS complications and were followed for 6 months minimum. Exclusion criteria included women with existing vaginal mesh in place, those who underwent concomitant vaginal mesh removal or concomitant surgery, or had 2 MUS removed. All MUS excisions were performed vaginally under general anesthesia with the aim of removing as much MUS as possible. Indications for SSR and outcomes at the last visit were classified based on patient self-reporting.

Results: From 2005 to 2015, 116 of 360 women were included in the final analysis. Patients were divided into two groups: Group 1: N= 73 early sling removal (< 5 years from placement of sling) and Group 2: N= 43 delayed sling removal (≥ 5 years from placement of sling). Baseline characteristics were similar in these two groups except for the median follow-up (significantly longer in Group 1 at 20 months over 13 months for Group 2). There were no differences in self-reported presenting symptoms between groups. All women reported significant improvement in their presenting symptoms in both groups except for urinary urgency incontinence and urge predominant mixed incontinence in Group 2 (Table 1). Women in Group 1 required significantly higher number of bulking agents and overall interventions for SUI than patients in Group 2 (p= 0.02 and 0.03 respectively).

Conclusion: Delayed removal of sling > 5 years after placement can still lead to significant improvement in symptoms related to MUS complications. Urge incontinence and urge predominant mixed urinary incontinence is less likely to improve in these women than when the removal is done at an earlier stage.
Poster #M15
INITIAL PERCEPTIONS OF ELECTIVE CESAREAN DELIVERY AMONG PRIMIPAROUS WOMEN
Colby P Souders, MD¹; Lauren N Wood, MD¹; Jennifer T Anger, MD, MPH¹; Kimberly D Gregory, MD¹; Melissa Wong, MD¹; Ronit Y Lyon ²; Alex J Hannemann ³; Jenna F Borok ³; Arlene Fink, PhD⁴; Sally L Maliski, PhD, RN⁵; Karyn S Eilber, MD¹
¹Cedars-Sinai Medical Center, Los Angeles, CA; ²David Geffen School of Medicine at UCLA, Los Angeles, CA; ³Augustana College, Sioux Falls, SD; ⁴UCLA, Los Angeles, CA; ⁵UCLA School of Nursing, Los Angeles, CA
Presented By: Lauren Wood

Introduction and Objectives: Women who present for treatment of pelvic floor disorders such as pelvic organ prolapse (POP) or stress urinary incontinence (SUI) often inquire as to the etiology of their condition, and whether it could have been prevented. Early awareness of the risks to the pelvic floor associated with vaginal delivery is unlikely to affect decision-making regarding vaginal birth; however, women may wish to be informed. Between 1-2.5% of US women give birth by elective Cesarean delivery (CD) annually while 21% of obstetricians prefer an elective CD for their partners or themselves (Declercq 2013 and NIH State- of-Science 2006). Reasons for elective CD include risk of SUI (53.3%) and POP (26.7%) (Wax 2005). The purpose of this study was to assess the perceptions of primiparous women of vaginal delivery and elective CD and their potential effects on the pelvic floor.

Methods: Primiparous women early in their pregnancies (15 weeks or less) were recruited from three obstetrical clinics based out of a tertiary medical center. Open-ended interviews that inquired about birth method preference and perspective were conducted. All interviews were audio recorded then transcribed and analyzed qualitatively using constructivist Grounded Theory methods (Charmaz 2001).

Results: Fifteen primiparous women at 6-15 gestational weeks were interviewed. The average age was 31.5 years (range 22 – 40). Seven patients had master’s degrees, four patients had doctorate degrees, three had bachelor’s degrees, and one had an associate’s degree. Most of the subjects indicated that they had not yet researched the topic of delivery method given their early pregnancy stage; however, 14 patients indicated they preferred a vaginal delivery, and one patient planned to request an elective CD to avoid “bladder issues” and the “uterus [dropping].” Three preliminary themes emerged from our analysis (Table 1).

Conclusion: Primiparous women are aware of the basic complications of vaginal birth but have very little awareness of long-term risks of SUI and POP. Elective Cesarean section is generally associated with negative perceptions among pregnant women despite positive hearsay.
COMPARISON OF TIMES TO URETERAL EFFLUX AFTER ADMINISTRATION OF SODIUM FLUORESCIN AND PHENAZOPYRIDINE

Seth A. Cohen, MD¹, Janine L. Oliver, MD¹, Evgeniy I. Kreydin, MD¹, Zaid Chaudhry, MD², My-Linh T. Nguyen, MD², Steven A. Mills, MD¹, A. Lenore Ackerman, MD¹, Ja-Hong Kim, MD¹, Christopher M. Tarnay, MD² and Shlomo Raz, MD¹
¹Department of Urology, UCLA, Los Angeles, CA; ²Department of Obstetrics and Gynecology, UCLA, Los Angeles, CA
Presented By: Seth Cohen

Introduction and Objectives: There is currently a national shortage of indigo carmine. In efforts to identify the most efficient aide for visualizing ureteral efflux intra-operatively, we wanted to investigate the time to excretion of two commonly used agents: 10% sodium fluorescein and phenazopyridine.

Methods: We retrospectively analyzed prospectively collected data from a cohort of women who underwent pelvic reconstructive surgery in 2015 and were given aides to visually identify ureteral excretion intraoperatively. Per provider preference patterns, a number of patients were administered 200 mg phenazopyridine orally with a sip of water, one hour prior to start of operative time. Other patients were given 0.5 mL of 10% sodium fluorescein intravenously in the operating room. In all cases, times were measured between the administration of the agent and the visualization of green urine (sodium fluorescein) or orange urine (phenazopyridine) in an indwelling catheter, placed at the start of the case. All women had normal serum creatinine and estimated glomerular filtration rates at time of surgery. Differences between the groups’ excretion times were compared with a Wilcoxon rank-sum test.

Results: Seven women received the phenazopyridine and five women received sodium fluorescein. The phenazopyridine group’s median age was 54 (range, 39-82), median BMI 27 (20-39), and median ASA class was 2 (1-3). The sodium fluorescein group’s median age was 55 (range, 40-75), median BMI 26 (21-32), and median ASA class 2 (2-3). Mean excretion times were significantly longer for the phenazopyridine group compared to the sodium fluorescein group (5.1 minutes versus 81.9 minutes, p=0.0057). See attached figure with a Dot Plot summarizing excretion times.

Conclusion: 10% sodium fluorescein is excreted significantly faster in the operating room, when compared to phenazopyridine. Depending upon cost of these agents at one’s institution, in addition to the desire to decrease operative times, this may impact practice patterns and selection of agent.
Poster #M17
LONG-TERM DURABILITY OF MIDURETHRAL SLINGS: A TIME TO EVENT ANALYSIS IN A TERTIARY REFERRAL SETTING
Kevin Gioia, MD¹; Katherine Odem-Davis, PhD²; Erika Wolff, PhD¹; Alvaro Lucioni, MD¹; Una Lee, MD¹; Kathleen Kobashi, MD¹
¹Virginia Mason, Seattle, WA; ²Center for Biomedical Statistics, Seattle, WA
Presented By: Kevin Gioia

Introduction and Objectives: The limited data in the literature regarding the durability of both retropubic (RP) and transobturator (TO) midurethral slings (MUS) makes it challenging to counsel patients regarding their long term success. A universal metric for defining success has not been widely established, lending to variable interpretations of the outcomes. Surgeons would likely agree, however, that a patient describing “completely dry” (<1 incontinent episode per week) is a successful outcome. We implemented a time to event (failure) analysis of all our MUS patients who responded “completely dry” at their initial post-operative questionnaire. One can then counsel patients on the durability of their sling given a successful initial outcome.

Methods: Retrospective review of our prospective database identified 113 patients that underwent RP MUS (n=83) or TO MUS (n=30) surgery and responded “completely dry” (by UDI-6) at first response within 1.5 years of surgery (initial post-op) and completed at least one additional questionnaire assessing patient-reported outcomes at least two years post-surgery. Durability was defined as probability of remaining completely dry over time. Follow-up data were censored at the time of any subsequent SUI procedure or at loss to follow-up. We implemented a time to event (failure) analysis of all MUS patients who responded “completely dry” at their initial post-operative questionnaire. Durability and confidence intervals (CI) were estimated by Kaplan-Meier, censored for at least 10 subjects at risk.

Results: Among this cohort of RP MUS and TO MUS patients, 42% (35/83) and 43% (13/30) never reported any stress leaks (by UDI-6) during follow-up after initial success respectively. The durability estimates for RP MUS patients at three, five, seven, and 10 years were 82% (95% CI: 74-91%), 67% (95% CI: 58-78%), 61% (95% CI: 51-73%), and 34% (95% CI: 24-49%). The durability estimates for TO MUS patients at three and five years were 83% (95% CI: 71-98%) and 56% (95% CI: 39-81%).

Conclusion: We limited our analysis to only those that were “completely dry” at initial follow-up and observed robust success following both RP and TO MUS. Our time to failure analysis provides the surgeon with another tool for discussion with the patient in the preoperative setting and at follow-up. Specifically, patients that are completely dry within the first year and a half following MUS surgery can be counseled that they have at least a 50% chance of remaining dry for five years or more.
Poster #M18

ASSESSING THE ROLE OF PATIENT-REPORTED OUTCOME QUESTIONNAIRES IN THE EVALUATION OF QUALITY OF LIFE AFTER SLING SURGERY FOR FEMALE STRESS URINARY INCONTINENCE: A REVIEW OF THE LITERATURE

Kyle M. Rose, MS; Umar R. Karaman, MD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Kyle Rose

Introduction and Objectives: Patient-reported outcomes, such as short forms of the Urinary Distress Inventory (UDI-6) and Incontinence Impact Questionnaire (IIQ-7), have been uniformly adopted as clinical tools to assess magnitude and bother of symptoms before and after sling surgery for female stress urinary incontinence (SUI). However, the ability of questionnaires to provide decision-making information for physicians and patients remains unknown. We aim to assess the outcomes of these questionnaires in the literature and to determine the impact of questionnaire data on clinical management of SUI.

Methods: A PubMed database literature search was performed for English language studies using the following terms: SUI, UDI-6, and IIQ-7. Only studies evaluating midurethral (MUS) or bladder-neck pubovaginal sling (PVS) procedures were included. Studies that only had a postoperative index value or did not compare ≥2 techniques or variables were excluded.

Results: An initial PubMed search yielded 775 studies, of which 43 met inclusion criteria. An additional 14 studies were identified from hand review of references, for a total of 57 unique studies. Studies analyzed the efficacy of retropubic MUS (21), transobturator MUS (12), PVS (4), and 20 trials compared different sling approaches or materials. Although age, BMI, prior and concomitant surgeries, and presence of mixed incontinence were identified as variables impacting questionnaire outcomes, no single study found a worsening or nonsignificant improvement in scores on either questionnaire postoperatively. Several studies examined the change in IIQ-7 or UDI-6 total scores, the outcomes of individual questions, and subsets of these questionnaires, and no study found a worsening or nonsignificant postoperative improvement. Randomized-controlled studies comparing two sling procedures revealed essentially no significant difference between groups in improvement on either questionnaire.

Conclusion: Our review confirms that a significant post-operative improvement in mean total IIQ-7, UDI-6, or both, is observed after any sling procedure, regardless of baseline patient characteristics, operative approach, or definition of success. Currently, these indices only provide a quantification of symptom severity and bother, and offer no guidance in sling choice. Future research should be devoted to other patient reported outcomes such as single-item questionnaires or minimum important difference in questionnaire outcomes.
PROSPECTIVE RANDOMIZED FEASIBILITY STUDY ASSESSING THE EFFECT OF CYCLIC SACRAL NEUROMODULATION ON URINARY URGE INCONTINENCE

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Presented By: Steven Siegel

Introduction and Objectives: This prospective, randomized, multicenter, single-blinded, 4x4 crossover study aimed to estimate the effect of 4 randomized InterStim® cycling settings (continuous stimulation, 16s on/8s off, 10m on/10m off, and 30m on/23.5h off) on urinary urge incontinence (UUI), global response assessment (GRA), and adverse device effects (ADEs).

Methods: Prior to entry, all subjects were implanted for at least 3 months with an InterStim® System for UUI. Subjects collected urinary incontinence episodes using a diary for 28 (±7) days in each cycling setting. General linear mixed models were used to estimate the treatment difference from the cycling settings on urinary incontinence (UI) episodes, degree of urgency, and number of pads used. The number of UI episodes were analyzed by the cycling setting and the period. A period is defined as the time of a treatment administration. GRA and ADEs were summarized by cycling settings.

Results: Thirty females were enrolled in the study and the first 24 subjects who completed the trial with unique randomization sequences contributed to the primary analysis. Of these 24 subjects, mean age was 64 ± 13.5 years and mean implant duration was 2.8 ± 3.1 years. The primary analysis showed no significant cycling (p=0.38) or period (p=0.08) effect on UI. There was a statistically significant interaction between cycling and period (p=0.0032). In the 1st period, subjects programmed to 10m on/10m off had significantly fewer UI episodes than subjects programmed to 16s on/8s off; however, this difference was not observed in any other period or in the sensitivity analyses. No cycling effect was found on degree of urgency, or daily pad use. Descriptive GRA data suggest that when programmed to 10m on/10m off over half of subjects (54%) felt their incontinence symptoms were better, followed by 42% on 30m on/23.5h off, 38% on 16s on/8s off and 29% on continuous. ADEs were similar across cycling settings with the most frequently reported being device stimulation issues (eg. uncomfortable stimulation); none were serious.

Conclusions: In this group of previously implanted subjects, the results suggest that different cycling settings may have similar efficacy to continuous stimulation. This current work is consistent with recent reports in the literature regarding the impact of cyclic programming on UUI episodes. Future work is warranted to understand the implications of cyclic stimulation and therapy kinetics.
Poster #M20

UROLOGY CHIEF RESIDENT PERCEPTION OF THEIR RESIDENCY TRAINING

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Presented By: Christopher Gomez

Introduction and Objectives: Assessments of the quality of urology residency education is limited to knowledge based exams. There have been attempts at assessing surgical skills but none that have been adapted to all programs. One of the primary goals of residency training is to develop confident surgeons. Our objective was to identify the current perceptions and attitudes of chief residents (CR) in regards to their training, comfort level with future practice and career interests.

Methods: A 15-question online survey was sent to residency program directors and coordinators to distribute to their chief residents. Comfort level with procedures was graded as very comfortable, comfortable, neutral, uncomfortable or very uncomfortable.

Results: A total of 42 Chief Residents (CR) responded to the survey. There were several skills and procedures that more than 20% of CRs rated they were uncomfortable with. 24% of CR were uncomfortable or very uncomfortable with cystocele repair with only 45% of residents stating they were comfortable or very comfortable performing cystocele repair. Other procedures that had > 20% level responding as uncomfortable were open radical prostatectomy (24%), cystoprostatectomy with neobladder formation (21%), billing and coding (37%). Residents were more comfortable with other FPMRS procedures such as mid-urethral sling (76% comfortable, 12% uncomfortable) and ureteral reimplant with Boari flap (67% comfortable, 12% uncomfortable). The procedures that most CRs rated comfortable with were TURP (100%) and insertion of a multi-component penile prosthesis (83%). Just over half of CRs (52%) were pursuing a fellowship and the most common fellowships were urologic oncology (27%) and female urology (23%). When asked: “Are there any aspects of urology that you believe you are ill prepared to deal with independently?” 50% of the free responses mentioned that they were lacking experience in female urology and reconstructive surgery.

Conclusion: Most CRs are comfortable with their training; however 50% of respondents feel that they lack female urology and reconstructive training while almost a quarter of graduating residents do not feel comfortable performing a cystocele repair. This small survey illustrates that continued studies should be done to assure the quality of residency training.
Poster #M21
IS THERE A MINIMUM IMPORTANT DIFFERENCE IN OUTCOMES OF COMMON VALIDATED QUESTIONNAIRES AFTER SLING SURGERY?
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Presented By: Umar Karaman

Introduction and Objectives: The smallest change in a questionnaire score that is found to correlate with meaningful symptom improvement is called the minimum important difference (MID). This measure may be helpful in separating a clinically significant difference from a statistically significant one on validated questionnaires used in evaluating outcomes and quality of life after midurethral sling (MUS). We aim to investigate the concept of MID for a visual analog score (VAS) measuring overall satisfaction after MUS surgery and its relationship to scores on commonly-used quality of life (QoL) questionnaires.

Methods: This is an IRB-approved, retrospective chart review of women undergoing retropubic (RP) and transobturator (TO) MUS at our institution. Pre- and postoperative assessment included pelvic exam and QoL questionnaires, including short forms of the Incontinence Impact Questionnaire (IIQ-7), Urogenital Distress Inventory (UDI-6), and 10-point VAS (1=miserable, 10=very happy). Cure was defined as no subjective or objective SUI and no further procedures for SUI. Demographics and perioperative details were abstracted from the hospital and clinic charts.

Results: Out of 1,062 women, 689(64.9%) underwent RP MUS and 373(35.1%) underwent TO MUS. Mean follow-up was 22 months. The SUI cure rate for the entire cohort was 75.4%, with significantly higher cure rates found in non-obese women and those without previous anti-incontinence surgery. There was a significant postoperative improvement in IIQ-7, UDI-6, and VAS, regardless of sling approach or cure status. Likewise, the urgency, stress, and obstructive/pain subsets of the UDI-6 all significantly improved postoperatively. There was a strong inverse correlation between scores on the IIQ-7/UDI-6 and the VAS. A VAS of 6 may represent the most optimal cutoff for detecting a non-significant difference in IIQ-7/UDI-6 scores. VAS >7 was a reliable measure for SUI cure.

Conclusion: There is a universal improvement in postoperative IIQ-7, UDI-6, and VAS scores after either MUS approach, regardless of SUI cure. The 10-point VAS is inversely correlated with scores on both QoL questionnaires. Little additional information is gleaned from the IIQ-7/UDI-6 in women with scores >6 on the VAS, suggesting that these questionnaires may be omitted in this population. Further research is necessary to see if this cutoff will ultimately represent a clinically significant difference.
Poster #M22
CHANGE IN URINARY STORAGE SYMPTOMS FOLLOWING TREATMENT FOR FEMALE STRESS URINARY INCONTINENCE
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Presented By: Zachary Panfili

Introduction and Objectives: Sling surgery is common for stress urinary incontinence (SUI). Yet many women have stress-predominant mixed urinary incontinence. The change in urgency/urge urinary incontinence (U/UUI) following treatment is not well documented. Our aim was to assess changes in U/UUI in women undergoing a sling placement for SUI.

Methods: Retrospective review of women treated for SUI with either an autologous rectus fascia pubovaginal sling (AF-PVS) or synthetic retropubic midurethral sling (MUS). Validated questionnaires: Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire-Short Form (IIQ-7), and Visual Analog Score (VAS) were obtained pre and post-operatively. Change in storage symptoms assessed as resolved, improved, same, or worsened, and correlated with performance on questionnaires. Objective cure was defined as a negative cough stress test and subjective cure was associated with improved overall score on UDI-6, VAS score ≥ 7, or both.

Results: 927 women were identified for inclusion. 718 (77.5%) had preoperative MUI. 487 (67.8%) underwent a MUS. 231 (32.2%) underwent an AF-PVS. Similar objective cure rates were noted following MUS vs. AF-PVS (78.2% vs. 71.9%, p=0.315). Subjectively, women treated with MUS experienced greater improvement in U/UUI (72.8% vs. 57.6%, p=<0.001) than AF-PVS. Multivariate analysis showed the MUS patients were over two times more likely to show subjective improvement in UDI-6 and VAS scores than the AF-PVS cohort. Postoperative, validated questionnaires correlated significantly with storage symptom outcome.

Conclusion: Patients with concomitant U/UUI experience significant symptom improvement following treatment for MUI. Quality of life assessment following surgery is directly correlated with improvement in U/UUI.
SYSTEMATIC REVIEW OF ADVERSE EVENTS FROM PERCUTANEOUS TIBIAL NERVE STIMULATION THERAPY COMPARED TO ANTICHOLINERGICS FOR OVERACTIVE BLADDER SYNDROME
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Presented By: Marisa Clifton

Introduction and Objectives: The efficacy of percutaneous tibial nerve stimulation (PTNS) for overactive bladder (OAB) has been well-described. The American Urologic Association OAB guidelines offer PTNS as a third-line therapy for OAB. As PTNS is an effective OAB treatment, it may be reasonable to consider this therapy as first- or second-line therapy if the risk of adverse events is comparable or less than those of OAB medications. Therefore, we performed a systematic review and meta-analysis of the literature that compared PTNS to anticholinergics to determine the rate of adverse events between these two treatments.

Methods: A literature search was performed in PubMed, EMBASE and CENTRAL to identify randomized controlled trials (RCT), prospective studies, and retrospective reviews that evaluated PTNS compared to anticholinergics. Studies without description of adverse events were excluded. Statistical analysis was performed with RevMan 5.3.5. No funding was used.

Results: 5 RCTs comparing the efficacy of PTNS versus an anticholinergic medication treatment arm with description of adverse events were included. No serious adverse events were reported. Two RCTs compared PTNS to an anticholinergic alone – the PTNS arm had a 16.4% (11/67) rate of adverse events while the anticholinergic arm had a rate of 23.9%(16/67). One crossover RCT with a three-month washout period showed no adverse events during PTNS treatment and an adverse event rate of 5% (2/40) during anticholinergic treatment. One RCT comparing PTNS to PTNS+oxybutynin found an adverse event rate of 9.5% (2/21) in the PTNS only arm and an adverse event rate of 36.4%(8/22) in the PTNS+oxybutynin arm. The last RCT compared PTNS+tolterodine to tolterodine and found an adverse event rate of 25% (5/20) in the PTNS+tolterodine group while the tolterodine alone group had a rate of 30% (6/20). When these studies were weighted, there was a trend toward PTNS having less adverse events compared to anticholinergics (OR 0.52; 95%CI 0.27, 1.02) as seen in Figure 1.

Conclusion: There is a trend toward fewer adverse events in OAB patients with PTNS therapy compared to anticholinergic treatment. Based on these results PTNS may be considered as first- or second-line therapy in patients with OAB.
MANAGEMENT OF PATIENTS SEEKING REVISION OF ANTI-INCONTINENCE SLING: OUTCOMES OF URETHROLYSIS VS. PARTIAL EXCISION

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Presented By: Alice Drain

Introduction and Objectives: Stress urinary incontinence (SUI) is highly prevalent and the rate of sling surgery for SUI in the United States has increased since 2000. While success rates are high, complications may occur. Urethrololysis has traditionally been the gold standard for management of complications after anti-incontinence surgery, however partial excision is proposed as a less aggressive option. The aim of this study is to describe the outcome of formal urethrololysis compared to partial sling excision.

Methods: Chart analysis was performed on patients assigned a CPT code of 57287, 53500 or 57295 for revision of sling for stress incontinence, urethrololysis, or revision of graft at our institution from 2010-2015. Demographics, indications, outcome, and subsequent treatment of patients undergoing revision surgery were evaluated.

Results: 110 patients underwent sling revision. Of patients seen at our tertiary care center, 33.6% had prior revision and the median length to revision was three years. Urethrololysis was performed on 29 and partial excision on 81. There was no significant difference between indication for the procedures.(Table 1) Overall success rate was 73.7% for urethrololysis and 83.3% for partial excision. Both had similar symptom outcomes, with 100% success for retention, incomplete bladder emptying, mesh erosion and extrusion. Without concomitant sling placement, SUI developed in 27.8% of urethrololysis and 35.1% of partial excision patients, which is higher than previously reported. New onset urgency developed in 20.7% of urethrololysis and 7.4% of partial excision patients, which was significant (p=.05). Subsequent treatment rates were similar. Following urethrololysis 10.3% had midurethral sling (MUS), 6.9% pubovaginal sling (PVS) and 13.8% Coaptite for SUI, and after partial excision 7.4% had MUS, 17.2% PVS and 13.6% Coaptite. Repeat revision was needed in 1 patient (3.4%) after urethrololysis and 2 (6.9%) after partial excision.

Conclusion: Both formal urethrololysis and partial excision had good success rates, 73.7% and 83.3%, respectively. New onset urgency was lower for partial excision compared to urethrololysis, but rates of all other complications and further treatment were similar.
Poster #M25
THERMAL PAIN THRESHOLD AND TOLERANCE MEASURED BY QUANTITATIVE SENSORY TESTING IN OVERACTIVE BLADDER (OAB): DO WOMEN WITH OAB DEMONSTRATE HYPERALGESIA?
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Presented By: Elizabeth Brown

Introduction and Objectives: Overactive bladder (OAB) pathophysiology remains unclear, but may be related to altered bladder afferent signaling. Hyperalgesia occurs in the setting of afferent nerve hypersensitivity and may suggest dysfunction of afferent nerve signal processing. The study aim was to compare the degree of thermal cutaneous hyperalgesia using quantitative sensory testing (QST) to measure pain threshold and tolerance levels in women with and without OAB.

Methods: We recruited women with medication-refractory OAB who were electing either sacral neuromodulation or onabotulinumtoxin A to undergo QST with a Medoc Thermal Sensory Analyzer that applied a controlled heat stimulus to the forearm. To assess hyperalgesia, each subject underwent a series of four pain threshold and tolerance trials to assess the temperature at which the stimulus started to feel “painful” or the maximum tolerance was reached, respectively. The four temperature values were averaged and compared to that of 15 healthy controls using t-test statistics.

Results: Our study sample included 14 women with OAB [mean age 57.5 years (range 31-72)] and 15 controls [mean age 34 years (range 22-55)]. In women with OAB, the average pain threshold was 44.67±3.75 compared with controls 42.06±3.42, p=0.061. The average pain tolerance was 47.98±1.51 in women with OAB, compared with controls 46.59±1.23, p=0.011.

Conclusion: In this pilot study, women with OAB did not demonstrate hyperalgesia as measured by thermal pain threshold and tolerance levels on QST compared to healthy controls. Further study will evaluate the use of pain threshold and pain tolerance values by QST as an objective marker for OAB.
Poster #NM25
TRENDS IN AMBULATORY MANAGEMENT OF FEMALE URINARY INCONTINENCE IN THE UNITED STATES
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Presented By: James Forde

Introduction and Objectives: Guidelines regarding the assessment and management of urinary incontinence (UI) have been published by the various societies including the EAU, AUA and SUFU. Despite these guidelines variations in the assessment and management of these patients still exists. We analyzed the change in both physician and patient demographics and well as the change diagnostic tests that were ordered for patients with UI over a defined timeframe.

Methods: The National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) are annual surveys conducted on a nationally representative sample of visits to physicians in office-based practices and hospital outpatient departments. We performed a trend analysis using data from the NAMCS and NHAMCS from 1999 through 2010. We identified visits by adult, female patients to physician practices or hospital outpatient departments where the chief complaint or primary diagnosis was urinary incontinence using reason-for-visit (RFV) codes and ICD-9 CM codes. The main outcome measures were measures of use: imaging, anti-incontinence medications, urinalysis, and referral to another physician. Analyses were performed using Stata Statistical Software, version 13.0 (StataCorp).

Results: We examined the change in management of UI between 1999 and 2010 in terms of two years intervals over that time frame. Between 1999/2000 and 2009/2010 the number of visits by patients to a physician for assessment of urinary incontinence increased from 10.7 to 13.6 million. There was no statistical difference over that timeframe in terms of patient age, race/ethnicity, physician specialty attended (primary care, urology, gynecology). The overall use of anti-incontinence medications increased significantly (11.5 to 18.3%, p=0.02). The use of urinalysis decreased overall (65.3 to 55.1%, p=0.05). This decrease was more pronounced among gynecologists (59.7 to 33.1%, p= 0.07) than urologists (82.8 to 70.4%, p=0.16). Among urologists the use of imaging increased (11.8 to 16%, p=0.08) while among gynecologists the use of imaging deceased (9.5 to 5.4%, p=0.2). There was an overall increase in numbers of referrals to another physician (5.6 to 12%, p=0.11).

Conclusion Despite the existence of guidelines for the investigation of the different types of UI considerable variations exist between physicians in terms of the appropriate management particularly with the use of imaging and urinalysis.
Introduction and Objectives: Microscopic hematuria (MH) is an incidental finding that may represent pathology anywhere along the urinary tract. It is unknown whether the risk factors for hematuria are the same across populations or if there are female specific factors that may influence this finding. The objective of this study was to determine the risk factors that may contribute to the diagnosis of microscopic hematuria (MH) in women.

Methods: This multicenter case-control study reviewed cases of women presenting to Female Pelvic Medicine & Reconstructive Surgery (FPMRS) sites with MH from 2010-2014. MH was defined as three or more red blood cells per high power field (RBC/hpf) in the absence of infection, as indicated in the American Urologic Association (AUA) Guidelines. Controls were matched to cases in a 1:1 ratio and chart review of ten risk factors was performed (urethral caruncle, pelvic organ prolapse, vaginal atrophy, personal or family history of nephrolithiasis, prior prolapse or incontinence surgery, past or current smoking, chemical exposure, family history of urologic malignancy, prior pelvic radiation, and prior alkylating chemotherapy). Odds ratios were performed to assess risk factors.

Results: We reviewed 2,095 charts of women with hematuria from eight FPMRS sites to identify 493 cases and 501 controls. There was no difference in age, body mass index, or menopausal status of cases versus controls. Current smoking, a history of pelvic radiation, and a history of nephrolithiasis were all significant risk factors for MH (p<0.05). Vaginal atrophy, menopausal status, and use of estrogen were not found to be risk factors for MH (p=0.42, 0.83, and 0.80 respectively), see Table 1. When stratifying the quantity of MH, women with increased RBC/hpf were more likely to have significant findings on their imaging results. Imaging found four solid renal masses (1.1%), five ureteral filling defects (1.4%), 60 cases of nephrolithiasis (16.6%), and seven cases of hydronephrosis (1.9%). Cystoscopy revealed 11 bladder lesions (2.7%), eight benign and three not biopsied.

Conclusion: Our findings suggest the risk factors for MH in women are current smoking, a history of pelvic radiation and a history of nephrolithiasis.
Poster #NM27
RESIDENT KNOWLEDGE SURGICAL SKILL AND CONFIDENCE IN TRANSOBTURATOR VAGINAL TAPE (TOT) PLACEMENT; THE VALUE OF A CADAVER LAB

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Presented By: Woojin Chong

Introduction and Objectives: The primary objective of this study was to examine the value of cadaver use in training OBGYN residents the TOT procedure and to assess its efficacy by using a custom designed pelvic floor model to test resident ability to perform the TOT procedure.

Methods: Thirty-four residents completed a written exam to assess their knowledge of pelvic floor anatomy and the TOT procedure. They were then randomized into two groups: Group 1 had didactic lectures on pelvic anatomy, management of stress urinary incontinence, and an instructional video on TOT insertion; Group 2 had the identical interventions, but also participated in a half−day cadaver lab. Both groups completed a post−intervention exam. Participants were then evaluated on their ability to perform TOT insertion on a custom designed pelvic floor model. A proctor skilled in mid−urethral sling surgery observed and graded each resident. In addition, residents were asked to report their confidence in pelvic anatomy and their ability to perform the TOT procedure before the lecture and following completion of the TOT simulation. They were also asked to report on the realism of the pelvic floor model. SPSS 21.0 was used for the statistical analysis. Categorical variables were analyzed using χ² test while continuous variables were analyzed using Student’s t−test. A p−value of 0.05 was the threshold used to define a statistical significance.

Results: Demographics of both groups were comparable. No significant difference was detected between groups on pre−intervention written exam (6.24/10±1.03 Group 1; 6.94/10±1.08 Group 2, p=0.2). After the intervention, exam scores improved for both groups, while the Group 2 score was significantly higher than Group 1 (8.8% for Group 1; 14.1% for Group 2, p=0.02). Additionally, the TOT insertion score on the pelvic floor model was significantly higher in Group 2 compared to Group 1 (6.76/15 ±2.54 Group 1; 10.24/15 ±2.73 Group 2, p<0.01). Confidence scores improved in both groups after the intervention. All trainees reported that the pelvic floor model was highly realistic.

Conclusion: Cadaver lab exposure, along with other educational interventions (lectures and video) improves residents’ knowledge, surgical skill and confidence regarding TOT placement. The custom designed, inexpensive pelvic floor model that allows for a realistic simulation of TOT placement can be used to assess resident surgical ability and also aid the training of residents.
Poster #NM28
INCIDENCE OF PATHOLOGY IN PATIENTS WITH DISCORDANT ULTRASOUND AND CATHETERIZED POST-VOID RESIDUALS AND ITS EFFECT ON MANAGEMENT
Marisa Clifton, MD; Howard Goldman, MD
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Presented By: Marisa Clifton

Introduction and Objectives: The utility of a post void residual (PVR) in select urologic patients has been well established in the literature. Although the reliability of ultrasound (US) PVR is well documented, US may detect intrabdominal and pelvic fluid collections and result in a falsely elevated US PVR. The objectives of this study are to determine the incidence of pathology in patients with discordant US and catheterized PVR and to determine if this pathology changes patient management.

Methods: After institutional review board approval, a retrospective chart review of patients with discordant PVRs from 2011-2015 was performed. At our institution, one surgeon (HBG) obtains an US PVR as well as a catheterized PVR at the time of office cystometry in select patients. We defined discordance of PVR as an US PVR that is 100cc more than the catheterized PVR in a patient with an US PVR<500cc. In patients with discordant PVRs, imaging is routinely ordered to evaluate for intrabdominal or pelvic pathology. Demographic data, PVR values, and imaging information were collected. Descriptive statistics are presented as percentages, mean±SD or median (interquartile range).

Results: Twelve patients with discordant PVRs were identified. One patient was excluded due to loss of follow-up. Median follow-up was 10 (2, 17) months. Demographics: Age 56 (48.5, 70), BMI 27±5.4, US PVR 270±97cc, catheterized PVR 27±31cc. 10/11 patients (91%) underwent initial screening with abdominal and pelvic ultrasound. One had an abdominal CT. Pathology was identified in 7/11 (64%) and included ovarian cancer in one patient, polycystic kidney disease in another, ovarian cysts in four and a large fibroid in another. The patient’s pathologic finding changed her management in 4/7 (57%) cases-the patient with newly diagnosed ovarian cancer underwent debulking surgery, the patient with polycystic kidney disease underwent colpocleisis for prolapse to avoid the intraperitoneal space, the patient with a large fibroid underwent open supracervical hysterectomy and sacrocolpopexy for prolapse, and the remaining patient had a bilateral salpingoopherectomy for her complex cyst.

Conclusion: In patients with discordant US and catheterized PVR, it is important to obtain abdominal imaging to rule out intrabdominal or pelvic pathology. In this patient population, over half may have underlying pathology. In those with intrabdominal or pelvic pathology, over half will have a change in their management because of this pathology.
Poster #NM29
THE INFLUENCE OF MESH LITIGATION ON REPORTING IN THE MAUDE DATABASE
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Presented By: Lauren Wood

Introduction and Objectives: From 2008 to 2010, the FDA received 2,874 complication reports related to the use of transvaginal mesh for pelvic organ prolapse (POP) (1,503) and slings for stress urinary incontinence (SUI) (1,371). We aimed to conduct a longitudinal analysis of the safety events reported to the FDA Manufacturer and User Facility Device Experience (MAUDE) database and evaluate the relationship between the FDA public health notifications and the number of legal claims filed.

Methods: Using the MAUDE database, both the simple search approach was used with the key term “transvaginal mesh” and categorical searches for synthetic mesh used for POP and SUI were conducted. A random sample of 921 cases was evaluated to identify types of complications and devices reported to the FDA.

Results: From January, 2000 to October, 2014, there were 31,212 complications reported related to POP mesh and slings. 21,362 (68.4%) of the complications were sling-related and 9,829 (31.5%) were related to POP mesh. Twenty-one complications submitted (0.067%) involved both slings and POP mesh. From 2000 to 2003, there were no reports of complications. The peak number of complications reported was in 2013 for slings (17,563). In all years, sling complaints outnumbered POP complaints, except for years 2009 to 2011 (Figure 1). The most common mesh complications reported were: pain (20%), erosion (19%), non-specific injuries (12%), voiding problems (8%), and dyspareunia (7%). For slings, the most common devices associated with complications were retropubic (60%), transobturator (TOT) (33%), and TOT mini slings (6%). Review of a subset of complaints revealed that they were part of preformatted templates, possibly made by attorneys, many of which listed the same complaints in the same order across multiple patients and devices.

Conclusion: The MAUDE database, while imperfect, provides insight into reported mesh complications. The number of complications reported increased significantly shortly after the second FDA notice in 2011. The rate of reporting may reflect the rate of legal case filings. When drawing conclusions about the rate of different complications, the legal pressure to report non-specific complications must be considered.
Poster #NM30

INFECTION RATE AFTER SACRAL NEUROMODULATION SURGERY: A REVIEW OF 1033 INTERSTIM PROCEDURES

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Presented By: Marisa Clifton

Introduction and Objectives: The rates of infection after sacral neuromodulation (SNM) implantation have been previously reported as between 5-11%. As the implantable pulse generator (IPG) is the most expensive component implanted, infection after IPG manipulation has the potential to incur significant cost, as this results in the need to replace a potentially well-functioning device. This study investigated the rate of and risk factors for SNM device infections in a large, demographically diverse patient cohort.

Methods: After institutional review board approval, a retrospective review of all SNM procedures (peripheral nerve evaluation (PNE), lead implantation (stage I), IPG manipulation (stage 2, SNM revision) performed by four different providers between 2011 and 2015 was completed. Clinical and demographic characteristics the group were reported. Descriptive statistics are presented as percentages, means (±SD) or medians [interquartile range]. T-test, Mann-Whitney U, Chi-Square, or Fisher exact tests were used as appropriate. p<0.05 was considered statistically significant. No specific funding was utilized for this study.

Results: Between 2010 and 2015, 1033 total SNM procedures were performed. Demographics: age 56[43.5-68.8], BMI 28.2[24.6-33.4], female 85.5%, diabetes 14.5%, smokers 17.1%. Primary indication for SNM: overactive bladder 78.4%, non-obstructive urinary retention 18%, fecal incontinence 1.5%, other 2%. The infection rate of all SNM procedures was 1.6% (n=17). No surgical site infections after PNE were identified. Stage I procedures had a 1.5% (5/335) infection rate; however, none occurred since January 2012. Of all patients who underwent IPG manipulation, 1.8%(12/650) experienced an infection postoperatively and univariate analysis identified only the primary implant indication of non-obstructive urinary retention as a significant (p=0.008) risk factor. There was no significant difference in risk of infection based on year of procedure.

Conclusion: In our cohort, the overall risk of SNM infection was 1.6%. In patients that undergo any IPG manipulation, this rate is 1.8%. Patients who undergo SNM for non-obstructive urinary retention appear to have the highest risk of IPG infection.
CASE DISTRIBUTION AND COMPLICATIONS OF MID-URETHRAL SLING SURGERY BEFORE AND AFTER HEALTH CANADA ADVISORY ON PELVIC FLOOR MESH IN A CANADIAN CENTRE

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Vesia [Alberta Bladder Centre], Calgary, AB, University of Calgary, Calgary, AB

Presented By: Kevin Carlson

Introduction and Objectives: In 2010, Health Canada issued an advisory to hospitals regarding the use of mid-urethral mesh sling (MUS) surgery in women with urinary incontinence. It was observed that the number of surgeons in Calgary performing MUS surgeries and the complications rates of these surgeries dropped after the 2010 advisory. The purpose of this study was to substantiate this observation with empirical data from the health region. This study retrospectively evaluated the number of surgeons performing MUS surgeries and complication rates from 2005 to 2013 and compared the number of MUS surgeries performed, emergency room utilization, and hospital admissions before and after the 2010 Health Canada (HC) advisory.

Methods: The number of surgeons performing MUS surgeries decreased slightly from 44 to 40 after the HC advisory. The specialty makeup of surgeons performing MUS surgeries changed significantly after the HC warning, with a slightly higher percentage of urologists conducting the surgeries after the warning (14% vs. 16%, Fisher’s exact = 0.003).

Results: Patients undergoing surgery after the HC advisory were older than those patients undergoing surgery before the HC advisory (54.2 (range 24-91), 56.1 (range 24-95), t=-5.58, p<0.001). The majority of patients (4,791, 95%) received 1 MUS surgery, with 258 receiving two surgeries and 24 patients receiving three surgeries. There was no difference in the number of patients who received a subsequent surgery within one year of initial surgery before or after the HC advisory (29 before vs. 24 after, Fisher’s exact=0.780).

Conclusion: Patients who received their MUS surgery after the Health Canada warning were significantly less likely to require an ambulatory care visit for a urologic-related diagnosis within two years of their initial surgery (40% before versus 24% after, Pearson ch2=148.9, p<0.0001) and those who did require visits had significantly fewer (3.7 visits before versus 1.9 visits after, t=5.36, p<0.0001). Patients were also significantly less likely to require an emergency department visit for a urologic-related diagnosis within two years of their initial surgery (17% before versus 8% after, Pearson ch2=101.8 p<0.0001) and those who did require visits had significantly fewer (2.3 visits before versus 1.8 visits after, t=2.6, p=.01). However, there was no significant difference in inpatient admissions for a urologic-related diagnosis within two years of their initial surgery.
CAN PRE-OPERATIVE MRI PREDICT NEW ONSET URODYNAMICALLY PROVEN STRESS URINARY INCONTINENCE (USUI) FOLLOWING EXCISION OF FEMALE URETHRAL DIVERTICULUM.

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UCLH, London, UK
Presented By: Sachin Malde

Introduction and Objectives: To assess the ability of pre-operative MRI characteristics to predict new onset USUI following excision of urethral diverticulum in females.

Methods: Review of a prospectively gathered database of all female patients having excision of a urethral diverticulum and comparison of their pre-operative MRI classification and characteristics with the post-operative incidence of new onset USUI.

Results: 70 women mean age 46.5 years (range 24-77) had excision of urethral diverticulum with Martius Fat Pad Interposition between 2002 and 2015 – and had preoperative MRI available for review and VCMG. 29 women had preoperative USUI and were excluded. The remaining 41 women of mean age 44.6 years (range 24-73) did not have preoperative USUI and their details are listed in Table 1:

<table>
<thead>
<tr>
<th></th>
<th>No Post-Op USUI</th>
<th>Post-Op USUI 12m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>31 (76)</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Simple N (%) (20)</td>
<td>5 (17)</td>
<td>1</td>
</tr>
<tr>
<td>Horseshoe N (%) (20)</td>
<td>16 (52)</td>
<td>1</td>
</tr>
<tr>
<td>Circumferential N (%)</td>
<td>10 (32)</td>
<td>3 (60)</td>
</tr>
<tr>
<td>Mean Transverse Diameter (mm)</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Mean Coronal Diameter (mm)</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>Mean Sagittal Diameter (mm)</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Loculated (%)</td>
<td>89</td>
<td>60</td>
</tr>
<tr>
<td>Degree of Uretha Surrounded by Diverticulum</td>
<td>256</td>
<td>298</td>
</tr>
<tr>
<td>Mean Os Distance to Meatus (mm)</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>Mean Os Distance to Bladder Neck (mm)</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Length of Uretha</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Mean Age Years</td>
<td>43</td>
<td>49</td>
</tr>
</tbody>
</table>

Conclusion: Pre-existing USUI is present in 41% of women having excision of urethral diverticulum. In the remaining 59%, new onset USUI occurs in 24% and persists at 12 months in 12%. There is a tendency for women with persisting new onset USUI to be older and have a larger degree of their urethra surrounded by their diverticulum but this does not reach statistical significance.
GENDER AND BMI-SPECIFIC ANTICHOLINERGIC PERSISTENCE AND ADHERENCE IN PATIENTS WITH OVERACTIVE BLADDER

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Presented By: Juzar Jamnagerwalla

Introduction and Objectives: OAB (Overactive bladder) is a highly prevalent disorder associated with obesity and may significantly impact quality of life. First-line treatment includes anticholinergic agents. The effect of obesity on adherence to medications has not been studied. The objective was to evaluate gender and BMI-specific adherence and persistence of major anticholinergic medications in OAB patients.

Methods: Truven Marketscan Commercial Claims & Encounter database from 2006-2012 was used. Patients ≥18 years old with OAB (filled ≥1 anticholinergic prescription claim) and continuously enrolled for at least 12 months pre and post-index were identified. Adherence post-index was assessed by medication possession ratio (MPR) and proportion of days covered (PDC). Persistence was defined as the number of days from anticholinergic initiation to discontinuation, switch or end of study period.

Results: There were 122,641 OAB patients (mean age 50.2; 84.9% female). Most common comorbidities were hypertension (33.8%), depression (17.8%), diabetes (13.2%) and obesity (8.9%). Most common drugs were oxybutynin, solifenacin and tolterodine. Solifenacin demonstrated higher persistence (17.1%) than all meds combined (12.6%, OR 0.7(0.68-0.72), p<0.0001) and oxybutynin (11.0%, OR 0.6(0.57-0.63), p<0.0001). Solifenacin had a higher mean number of persistent days of 142.54 (SD129.46; 95%CI 141.08-144.00) vs.115.38 for all meds combined (SD122.95, 95%CI 114.69-116.06, p<0.0001) and 107.69 for oxybutynin (SD118.07, 95%CI 106.38-109.00, p<0.0001). Males demonstrated greater persistence than females (13.2% vs.12.6% in non-obese13.5% vs.11.7% in obese). Mean MPR for solifenacin was 0.79 (SD 0.20, 95%CI 0.79-0.79), higher than the mean MPR of 0.76 for all meds combined (SD 0.24, 95%CI 0.76-0.77, p<0.0001) and 0.75 for oxybutynin (SD 0.24, 95%CI 0.74-0.75, p<0.0001). The proportion of patients with two or more prescriptions with PDC≥80% was higher for solifenacin than for all meds combined (22.1% vs.16.6%, OR 0.83(0.8-0.86), p<0.0001) and oxybutynin (14.6%, OR 0.74(0.71-0.77), p<0.0001). Males demonstrated greater adherence than females. Obese females were less adherent than non-obese females.

Conclusion: Solifenacin had the highest rates of patient compliance. Men are more likely to be compliant than women, as shown by higher rates of persistence and adherence. Obese men and women are less likely to be adherent to meds, likely related to severity of symptoms.

*Independent investigative grant funded by Astellas
Poster #NM34

ANALYSIS OF SEDIMENT FORMATION ON LONG TERM INDWELLING FREE-FLOATING INTRAVESICAL BALLOONS FOR THE TREATMENT OF SUI FROM TWO MULTICENTER RANDOMIZED CONTROLLED CLINICAL STUDIES.

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¹University Of Washington School Of Medicine; ²University of Antwerp, Atwerp, Belgium; ³Medical University of South Carolina, Charleston, SC; ⁴Vanderbilt University, Nashville, TN; ⁵Urological Associates of Southern Arizona, Tucson, AZ; ⁶Genitourinary Surgical Consultants Denver, CO 80220; ⁷Università Degli Studi Di Napoli “Federico II”, Naples, Italy; ⁸Maastricht University Medical Centre, Maastricht, Netherlands

Presented By: Jeffrey Snyder

Introduction and Objectives: Encrustation is a concern with any intravesical device. A novel free floating, non-occlusive, compliant intravesical balloon filled with compressible gas has been evaluated in US and European multi-center randomized controlled clinical trials for the treatment of SUI. Balloons from these clinical studies were analyzed after removal from the patient to evaluate the formation of calcium oxalate and its impact to the efficacy of the device or the potential for stone formation.

Methods: This study evaluated a total of 632 balloons removed from patients from two separate clinical studies. under direct visualization using an optical grasper and placed in a specimen collection mailer and sent to a central location for analysis. The balloons were analysed by visual inspection for sediment measuring the thickest deposit using a 10-point scale ranging from 0 (0 to 0.1mm), 1 (0.1mm – 1.49mm), 2 (1.5mm to 2.49mm) up to 10 (>9.5mm). 539 balloons were from 159 patients in Study 1, which used a seamed balloon with a valve welded into the seam (Figure 1A). In Study 2, 93 balloons were from 79 patients. Study 2 used a seamless Vesair® balloon with a valve welded to a small fill port (Figure 1C).

Results: 482 (89.4%) of the balloons in Study 1 had no measurable sediment formation (Score =0). Thirty-three scored 1, 15 scored two, four scored three and three scored four. Sediment for scores greater than 1 was located at the valve/seam. The mean indwell time was 81 days (range: 0 to 313 days). 89 (96%) of the balloons in Study 2 had no measurable sediment formation (Score = 0). Four balloons scored one. The mean indwell time was 159 days (range: 4 to 413 days). A representative sample of removed balloons is shown in Figures 1B and 1D. Sediment formation did not affect the device functionality and did not result in any obstructive issues.

Conclusion: Sediment formation was much less than expected, and the design changes implemented in Study 2 further reduced sediment formation. Compared to other intravesical devices, the balloon evaluated in this study was free floating, compressible, and buoyant. Further study is required to better understand which of these factors result in the limited sediment formation.

Poster #NM35 - WITHDRAWN
Poster #NM36
PREDICTORS FOR URINARY RETENTION AFTER INTRAVESICAL ONABOTULINUMTOXINA INJECTION FOR OVERACTIVE BLADDER
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Lahey Hospital and Medical Center, Burlington, MA
Presented By: Chintan Patel

Introduction and Objectives: Intravesical onabotulinumtoxinA (BTN/A) has been approved by the Food and Drug Administration for the treatment of overactive bladder (OAB) in patients who are refractory to anticholinergic medications. One of the risks of this intervention is urinary retention. The purpose of this study was to determine factors that predict urinary retention after BTN/A injection for OAB patients.

Methods: This was a retrospective analysis of patients who received a BTN/A injection at our institution from 2005 to 2013. Patients were excluded if they had neurogenic bladder, a chronic Foley catheter, suprapubic tube or intermittent catheterization schedule. Urinary retention was defined as needing a placement of Foley catheter and/or requiring straight catheterization. Data was analyzed utilizing general estimating equation (GEE) analyses.

Results: Based on the inclusion and exclusion criteria, 111 BTN/A injections among 73 unique subjects were reviewed. Mean age was 69.90 +/- 13.78 and 21% were men; the overall rate of urinary retention was 19%. Preoperative post void residual (PVR) (OR 1.013, 95% CI 1.001-1.024, P=0.027) and history of stroke (OR 4.63, 95% CI 2.809-7.637, P<0.0001) were significantly associated with postoperative urinary retention. Age was associated with a decrease in urinary retention (OR 0.96, 95% CI 0.934-1.002, P=0.066).

Conclusion: This data suggests that preoperative PVR and stroke history is a predictor of urinary retention following BTN/A injection. This study also found that as age increased there was a slight decrease in the risk of urinary retention. This suggests that BTN/A injections are well tolerated in the elderly population.
Poster #NM37
PREDICTORS OF VAGINAL MESH EXPOSURE FOLLOWING MID-URETHRAL SLING PLACEMENT: A CASE-CONTROL STUDY
Brian Linder, MD; Sherif El-Nashar, MD; Daniel Carranza, MD; Emanuel Trabuco, MD
Mayo Clinic, Rochester, MN
Presented By: Brian Linder

Introduction and Objectives: To identify risk factors associated with vaginal mesh exposure following midurethral sling (MUS) for treating stress urinary incontinence.
Methods: We identified women who underwent anti-incontinence procedures from January 2002 through December 2012. Patients with vaginal mesh exposure undergoing surgical repair after midurethral sling placement were compared with a control group without mesh exposure in a 1:3 ratio. Patients with ObTape sling placement (Mentor Corporation) were excluded. Logistic regression models were used to evaluate associations between clinical risk factors and vaginal mesh exposure.
Results: Twenty-seven of 2123 of patients (1.2%) developed vaginal mesh exposure necessitating surgery after primary MUS placement. Patients with mesh exposure were more likely to have prior bariatric surgery (p=0.02), hemoglobin <13g/dL (p=0.006), pre-menopausal status (p=0.008), younger age (p=0.001), and a retropubic approach (p=0.048). On multivariable analysis the following risk factors were identified: bariatric surgery (HR 7.04; p=0.04), retropubic approach (HR 5.7; p=0.04), hemoglobin <13 g/dL (HR 2.78; p=0.04), and pre-menopausal status (HR 2.6; p=0.052).
Conclusion: Prior bariatric surgery, retropubic approach and lower pre-operative hemoglobin were associated with a significantly increased risk of vaginal mesh exposure following MUS, recognition of these factors can aid in pre-operative patient counseling.
Poster #NM38
DOES TROCAR PUNCTURE OF THE BLADDER DURING MIDURETHRAL SLING IMPACT POSTOPERATIVE URINARY STORAGE AND VOIDING SYMPTOMS?
J. Margaret Kent, MD; Clifton F. Frilot, II, PhD; Alex Gomelsky, MD
LSU Health - Shreveport, LA
Presented By: Jennifer Kent

Introduction and Objectives: Trocar-mediated bladder puncture complicates 2-24% of retropubic (RP) midurethral slings (MUS) and is typically treated with extended bladder drainage. It is unknown whether puncture leads to development of future storage or voiding sequelae, prolonged catheterization, or decreased satisfaction with surgery. We aim to further characterize risk factors for bladder puncture and examine long-term patient outcomes following RP MUS placement.

Methods: This is an IRB-approved, retrospective chart review of women who underwent RP MUS at our institution. Voiding trial was performed per protocol on day of discharge. Those failing to void efficiently were discharged with an indwelling catheter and repeated the trial as outpatient. Pre- and postoperative assessment included pelvic exam and quality of life (QoL) indices. Cure equaled no subjective or objective SUI and no additional procedures for SUI.

Results: We identified 683 women who underwent a retropubic MUS with a mean follow-up of 18.1±17.2 months. Thirty-one women (4.5%) had a bladder puncture [right (21), left (10)]. One of these was missed on intraoperative cystoscopy and underwent partial excision the next day. Women in the puncture group had lower body mass index (26.2 vs. 30.2) and lower valsalva leak point pressure (79 vs. 89 cm H2O) vs. the non-puncture group. Other demographic variables and QoL index scores were not statistically different between groups. Median day of discharge (1 for both) and day of successful voiding (1 for both) were not statistically different between the puncture and non-puncture groups. Subjective postoperative emptying and prevalence of de novo storage symptoms was not significantly different between the 2 groups. There were no associations between laterality of puncture and postoperative storage and voiding symptoms. No patient suffered an intraoperative urethral injury and cystoscopy performed during follow-up period in 12 women in the puncture group and revealed no erosion. Postoperative QoL indices were significantly improved regardless of bladder puncture.

Conclusion: Bladder puncture during retropubic MUS surgery does not seem to be associated with additional urinary storage or voiding sequelae. Median time to successful voiding is similar in both groups. Likewise, bladder puncture is not associated with delayed sling erosion into the bladder. Non-delayed voiding trial may be considered in women sustaining a bladder puncture.
**Poster #NM39**

**ARE THE WOMEN WITH PERSISTENT STRESS URINARY INCONTINENCE AFTER MIDURETHRAL SLING SURGERY DIFFERENT FROM THOSE WITH RECURRENT SUI?**

Jessie Liang, MD; Clifton F. Frilot, II, PhD; Alex Gomelsky, MD

LSU Health - Shreveport, LA

Presented By: Jessie Liang

**Introduction and Objectives:** Midurethral slings (MUS) are an effective treatment for female stress urinary incontinence (SUI). However, women who fail sling surgery have not been typically separated into those who have persistent SUI (onset <6 weeks after MUS) and those with recurrent SUI (≥6 weeks). We hypothesize that there are characteristics in the cohort of women who have early or persistent SUI after MUS that may allow for prediction of recurrence in women who are initially continent.

**Methods:** We performed an IRB-approved, retrospective chart review of women who underwent RP and TO MUS at our institution and at least six-week follow-up. Pre- and postoperative assessment included pelvic examination, subjective SEAPI classification (Stress incontinence, Emptying, Anatomy (anterior vaginal wall descent), Protection (pad use), Inhibition (urge incontinence)), and quality of life (QoL) indices. Cure was the absence of subjective or objective SUI and no additional procedures for SUI.

**Results:** We identified 1062 women who fit the inclusion criteria (689 RP, 373 TO). Of these, 801 (75.4%) were cured of SUI, while 116 (10.9%) and 145 (13.7%) had persistent and recurrent SUI, respectively. The three groups were statistically similar in age, parity, valsalva leak point pressure, and Baden-Walker prolapse grades. Women with persistent SUI had a statistically higher body-mass index than the cured group (31.2 vs. 29.7, p<0.05) but not the recurrent SUI group (30.5). Women in the persistent and recurrent SUI groups had significantly higher preoperative pad use than those cured (2.6 and 2.3 vs. 1.6, p<0.01). Preoperative QoL and SEAPI scores indices were not statistically different between the persistent and recurrent SUI groups. Women with recurrent SUI had significantly longer follow-up length vs. persistent SUI or cure (36.7 vs. 15.4 and 19.3 months, p<0.001). Of interest, women with persistent SUI had statistically better postoperative SEAPI and QoL scores than the recurrent SUI group. As expected, the cured group had statistically better postoperative SEAPI and QoL scores than either group with postoperative SUI.

**Conclusion:** Over 10% of MUS failures may occur within the first six weeks after surgery. These women appear to be similar demographically to those with recurrent SUI. Delayed recurrence may be associated with lower QoL scores when compared with early recurrence. Further research into non-surgical factors and their possible association with recurrence is ongoing.
LESSONS LEARNED FROM THE MANUFACTURER AND USER FACILITY DEVICE EXPERIENCE (MAUDE) DATABASE ON TRANSVAGINAL MESH AND SLING REPORTS
Annie Abraham; Kristina Tzartzeva; Alana L. Christie; Philippe E. Zimmern MD
UT Southwestern Medical Center, Dallas, Texas
Presented By: Annie Abraham

Introduction and Objectives: To investigate the volume and sources of medical device reports on transvaginal mesh and sling complications to the FDA Manufacturer and User Facility Device Experience (MAUDE) database.

Methods: For the period 2008 to 2014, reports on transvaginal mesh and sling complications submitted to the MAUDE database were extracted and analyzed. Reports were also examined for major mesh and sling brands as well as reporter occupation.

Results: As seen on Figure 1, the number of reports on transvaginal mesh and sling implants grew at a slow pace from 2008 to 2011, ending with 1,687 reports in 2011. In 2012, however, the volume amplified nearly seven-fold from the year prior, yielding 11,710 reports from that year. The year 2013 witnessed an even greater surge with a total of 43,680 complication reports. Interestingly, this trend quickly subsided in 2014 as the number of reports plummeted to 5,467. Meanwhile, the number of attorney-submitted reports greatly increased by a factor of 18.6 in 2012 and saw a smaller increase in 2013. Physician-submitted reports increased three-fold in 2012, and then by a factor of 5.6 in 2013. Unfortunately, over half of the 2013 reports list an unknown occupation.

Conclusion: The escalated growth of transvaginal mesh and sling reports in the MAUDE database, as well as attorney-submitted reports, correlated with the timing of the 2011 FDA-issued safety communication warning the public about the risk of complications associated with transvaginal placement of surgical mesh. Shortcomings of the MAUDE database include lack of mandatory information on occupation reporting and a classification system for types of complications; however, MAUDE offers an appropriate quality improvement tool to monitor device complications and allow the FDA to alert the public.
DOES GOH CLASSIFICATION PREDICT OUTCOME OF VESICO-VAGINAL FISTULA REPAIR IN THE DEVELOPED WORLD?

Alice Beardmore-Gray, MB, ChB; Mahreen Pakzad, MB, BS, MD; Rizwan Hamid, MB, BS, MD; Jeremy Ockrim, MB, ChB, MD; Tamsin Greenwell, MB, ChB, MD
UCLH, London, UK
Presented By: Alice Beardmore-Gray

Introduction and Objectives: The Goh Vesico-Vaginal Fistula (VVF) classification has prognostic value in developing world (predominantly obstetric) VVF, with the chances of successful closure decreasing from Type 1 to 4. We evaluated the prognostic value of the Goh classification for developed world (predominantly iatrogenic) VVF.

Methods: A retrospective review of 63 consecutive patients of mean age 53 years (range 21-88) having VVF repair under the care of a single surgeon between 2006 and 2014 was performed. Demographic data, aetiology, operative data and final outcome (both anatomical and functional) was recorded. Each patient’s fistula was classified according to Goh’s system and outcomes correlated with this Classification.

Results: The results of this review are detailed in the table below.

<table>
<thead>
<tr>
<th>Goh Classification</th>
<th>Total</th>
<th>Anatomical Closure 1st repair N (%)</th>
<th>Anatomical Closure 2nd repair N (%)</th>
<th>Continent Post Anatomical Closure N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>41</td>
<td>37 (90)</td>
<td>4 (100)</td>
<td>41 (100)</td>
</tr>
<tr>
<td>Type 2</td>
<td>12</td>
<td>10 (83)</td>
<td>2 (100)</td>
<td>10 (83)</td>
</tr>
<tr>
<td>Type 3</td>
<td>6</td>
<td>6 (100)</td>
<td></td>
<td>5 (83)</td>
</tr>
<tr>
<td>Type 4</td>
<td>4</td>
<td>4 (100)</td>
<td></td>
<td>3 (75)</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>57 (90)</td>
<td>6 (100)</td>
<td>59 (94)</td>
</tr>
</tbody>
</table>

Conclusion: Anatomical closure was obtained in 90% of developed world VVF at 1st attempt and 100% overall, and was not affected by Goh Classification. Continence post anatomical closure of VVF was 94% and was worse with increasing Goh classification. The Goh classification has no prognostic value with respect to anatomical closure in developed world VVF but may have some value in determining those at risk of post anatomical closure urinary incontinence.
Poster #NM42
USE OF ILIOTIBIAL BAND (FASCIA LATA) AS A SALVAGE CONTINENCE REPAIR AFTER MESH REMOVAL – AT LEAST 6 MONTHS FOLLOW UP
Victoria C.S. Scott, MD¹; Seth A. Cohen, MD¹; Scott A. Greenberg, MD¹; Evgeniy I. Kreydin, MD¹; Janine L. Oliver, MD¹; A. Lenore Ackerman, MD, PhD¹; Zaid Chaudhry, MD²; My-Linh T. Nguyen, MD²; Ja-Hong Kim, MD¹; Shlomo Raz, MD¹
¹Department of Urology, UCLA, Los Angeles, CA; ²Department of Obstetrics and Gynecology, UCLA, Los Angeles, CA
Presented By: Victoria C.S. Scott

Introduction and Objectives: Women with severe stress urinary incontinence (SUI) after vaginal mesh removal require delicate repair. The peri-urethral fascia and vaginal tissues are often attenuated. We sought to describe patient satisfaction at least six months after placement of iliotibial band (fascia lata) sling for severe SUI, subsequent to mesh removal.

Methods: We retrospectively reviewed data from a cohort of women whom had undergone previous vaginal mesh removal, with subsequent severe SUI, for which, in 2014, each underwent placement of a sling using a graft from her iliotibial band (fascia lata). The fascial graft was harvested in a minimally invasive fashion, using the Crawford stripping device, and suspended retropubically using a double-pronged passer. Patients, at least six months from time of surgery, were called at their listed phone numbers and asked to participate in a survey in which they were asked to describe their satisfaction with their current continence.

Results: Thirteen women whom had undergone salvage continence repairs with iliotibial band (fascia lata) in 2014 were reached by phone for survey follow up in 2015. Median age was 53 years old (range 38-69), median BMI 29.3 (range 20-48), median ASA class of 2 (range 2-3). All had previously undergone vaginal mesh removal surgeries, with subsequent SUI. All of the women had severe SUI prior to repair, wearing a range of eight pads per day to constantly being in diapers. Post-operative length of stay for all patients was one day. Median follow up was eight months (range, 6-11). One of the 13 (8%) required eventual incision of the sling secondary to urinary retention. Two of the 13 (16%) underwent additional procedures for persistent bothersome SUI (transurethral injection of coaptite and placement of another fascial sling). No other secondary procedures were noted. Overall, 10 of the 13 (77%) patients reported improvement after fascial sling placement. Eight of the 13 (62%) were satisfied with the bother of their SUI after the repair.

Conclusion: Placement of iliotibial band (fascia lata) sling as a salvage continence repair for women with severe SUI subsequent to mesh removal offers a reasonably effective, safe intervention to a challenging population. More prospective studies are needed to determine long-term efficacy and durability of this repair.
**Poster #NM43**

**CLINICAL OUTCOMES IN WOMEN AFTER REVISION OF MIDURETHRAL SLING: DOES TIME TO INTERVENTION REALLY MATTER?**

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Presented By: Ekene Enemchukwu

**Introduction and Objectives:** Rates of de novo urgency and voiding difficulties after midurethral sling have been reported as high as 15-23%. Fortunately, the rate of surgical intervention for these symptoms is low (2-3%). In the absence of complete urinary retention, there are no universal criteria for diagnosing an obstructive sling. Clinicians also must weigh the risks of SUI recurrence after intervention and the risk of worsening urgency or voiding difficulties with continued observation. There is a paucity of data comparing early and delayed intervention for synthetic midurethral slings, thus the aim of this study was to compare demographics, presenting symptoms and outcomes in these two groups.  

**Methods:** We conducted a retrospective chart review of women with urinary retention and/or obstructive symptoms managed by sling revision (excision or urethrolysis) between 2010 and 2014. Demographics, procedures, presenting symptoms, outcomes and subsequent treatments were collected and compared based on time of intervention. We defined early intervention as <6 months and delayed intervention as >6 months.  

**Results:** 110 patients were identified as having a sling revision during this time period. Eighty-one of these met our inclusion criteria. Fourteen (17.3%) had early intervention while 67 (82.7%) had delayed intervention. There were no significant differences in mean age, revision type and post revision outcomes between the two groups. Patients with higher BMI were more likely in the delayed intervention group (25.5 vs 29.1, p=0.04). The delayed group was more likely to have a concomitant sling placed at the time of revision. Rates of improvement in symptoms were similar across groups. There were no significant differences in the subsequent treatments for SUI, though the higher rate of OAB medication use in the delayed group approached significance (p=0.08). Overall, this series had an 18.5% (15/81) rate of subsequent anti-incontinence procedure.  

**Conclusion:** There were no significant differences in outcomes between the early and delayed group. Finally, patient BMI must be further explored to better understand its role in the diagnosis the decision to perform a sling revision early or late.
TEACHING MID-URETHRAL SLING SURGERY TO RESIDENTS: IS IT SLOWING US DOWN?
Ali Reza Sharif Afshar, MD¹; Lauren Wood, MD¹; Catherine Bresee, MS¹; Colby Perkins, MD¹; Bruno Gross, MS²; Eugene Shkolyar, MD³; Jennifer Anger, MD¹; Karyn Eilber, MD¹
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Presented By: Ali Reza Sharif Afshar

Introduction and Objectives: The purpose of this study was to determine the impact of resident teaching on mid-urethral sling surgery.

Methods: We reviewed the charts of 134 women who underwent transobturator (TOT) synthetic mid-urethral sling procedures with and without concomitant cystocele and/or rectocele repair by two surgeons in a tertiary female pelvic medicine practice. Data analyzed included patient arrival time to operating room (OR), procedure start (incision) time, procedure end time, and patient exit time from OR. Total surgical time (TST), patient entering and exiting the OR, and total procedure time (TPT) were compared between cases with and without the presence of a resident trainee.

Results: Fifty-seven patients had a concomitant procedure in addition to a sling: 19 cystocele repair, 18 rectocele repair, and 20 combined cystocele and rectocele repair. A gynecology or urology resident was present at 57% (76/134) of all cases. The average TST for cases was 72.5 ± 2.2 minutes (range 30-186) with an average TPT of 54.5 ± 2.1 (range 20-171) minutes. After adjusting for significant covariates, the presence of a resident increased times by 6.3 ± 2.7 (p = 0.023) and 7.9 ± 2.5 (p = 0.002) minutes, for total surgical times and procedure times, respectively.

Conclusion: Resident participation in transobturator mid-urethral sling procedures resulted in a statistically significant, although small, increase in operative time.
**Poster #NM45**  
**TRANSCRIPTIONAL REGULATION OF CORTICOTROPIN RELEASING FACTOR GENE EXPRESSION**  
Lizath Aguiniga; David Klumpp, PhD  
Northwestern University, Chicago, IL  
Presented By: Lizath Aguiniga

**Introduction and Objectives:** Corticotropin-releasing factor (CRF) has been well established as a key mediator of stress responses and voiding control, where increased CRF levels in Barrington’s nucleus induce urinary retention and bladder dysfunction. Arachidonic acid (AA) metabolites have been shown to modulate CRF expression; however, the transcriptional mediators of this modulation are unknown. We are investigating the role of PPRE and XRE sites on CRF gene expression. The objective was to determine the role of PPAR and AhR in AA-dependent CRF induction.

**Methods:** We used MIRAGE software to identify candidate transcription factor binding sites in a 1kb region of the human CRF gene promoter. We identified a peroxisome proliferator-activated hormone response element (PPRE) and two Xenobiotic Responsive Element (XRE) sites as candidate mediators of AA-dependent CRF induction. Site-directed mutations of the PPRE and XRE sites were generated in a CRF-luciferase reporter plasmid. We evaluated expression of WT and the mutants in HEK 293T cells for their responses to AA. We also transfected in transcription factors AhR and PPAR and evaluated AA-dependent CRF induction.

**Results:** Mutation of XRE1 resulted in significantly decreased basal CRF expression, while mutation of XRE2 or PPAR had modest effects. However upon AA induction, the PPRE mutant had increased CRF expression compared to WT, whereas XRE1 had decreased expression. The double mutation of XRE1 and XRE2 resulted in decreased responsiveness to AA. Co-transfection with PPAR had modest effects; however, AhR resulted in a significant increase in AA-dependent CRF expression. Over-expression of AhR and PPAR resulted in inhibition of AhR-dependent CRF induction.

**Conclusion:** These results suggest AhR binding to the XRE sites modulates AA-dependent CRF gene expression. Continued studies will examine the role of such factors in modulating voiding in response to stress.

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Poster #NM46
TRENDS AND RE-INTERVENTIONS IN THE SURGICAL MANAGEMENT OF STRESS URINARY INCONTINENCE AMONG FEMALE MEDICARE BENEFICIARIES
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Presented By: James Forde

Introduction and Objectives: Stress urinary incontinence (SUI) affects a significant number of female patients. Over the past number of years treatments such as sling procedures have gained popularity, while the use of bulking agents has been gradually decreasing. We sought to compare the use of bulking agents and slings for the treatment of stress urinary incontinence (SUI) among female Medicare beneficiaries.

Methods: We identified female patients undergoing sling surgery or bulking agent injection between 2001 and 2011 from a random sample of 5% of national Medicare beneficiaries age 65 and older. Female beneficiaries who underwent a sling or bulking procedure were identified based on CPT-4 and ICD-9 procedure codes. Statistical analysis for categorical data determined differences in distribution of patient demographics and comorbidities. The 90-day adverse events and re-interventions were compared between treatment groups. Time to event was used to determine freedom from re-intervention after therapy.

Results: We identified 21,134 and 3,475 patients undergoing sling and bulking procedures, respectively over the defined time period. There was a 29.7% increase in the number of sling procedures and a 59.5% decrease in bulking procedures from 2001 to 2011. The majority of patients who underwent sling surgeries were younger than those undergoing bulking therapy (65–74yo: sling 64.1%, bulking agent 39.9%; p<0.01). Patients receiving bulking agents had higher rates of diabetes, cardiovascular disease, heart failure, and renal failure (p<0.01). The 90-day adverse events rates following both procedures were rare with the exception of urinary retention, which was increased in sling-treated women but frequent in both groups (sling 11.3%, bulking agent 8.4%; p<0.01). A smaller proportion of patients receiving slings had re-interventions (repeat sling 7.4%, bulking agent 38.2%; p<0.01). Overall, 53.2% sling patients and 76.3% bulking patients who had subsequent procedures received the same procedure at the first intervention.

Conclusion: Both sling and bulking procedures are safe in terms of short-term performance, though rates of retention were high in both groups. Patients receiving re-interventions tend to repeat the same therapy instead of converting to another procedure.
Poster #NM47
TRANSVAGINAL MESH IN THE MEDIA FOLLOWING THE 2011 U.S. FOOD AND DRUG ADMINISTRATION PUBLIC HEALTH NOTIFICATION UPDATE
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Presented By: Kevin Koo

Introduction and Objectives: Prompted by patients’ changing perceptions of transvaginal mesh, this study examines how mesh has been reported in the news following the 2011 U.S. Food and Drug Administration (FDA) updated notification about the use of mesh in the treatment of pelvic organ prolapse.

Methods: Two national newspaper databases were queried for articles discussing transvaginal mesh published within three years of the FDA announcement. Content analysis included headline subjects, mesh-related complications, quoted sources, and the FDA recommendations. To determine whether more widely-read sources publish higher-quality reporting, a subgroup analysis was conducted based on newspaper circulation.

Results: Ninety-five articles met inclusion criteria. Mesh-related litigation was the most common headline subject (36 articles, 38%), and 54% of all articles referenced legal action. Fifty-seven articles (60%) cited at least one mesh-related complication. Only 18 articles (19%) quoted surgeons who use transvaginal mesh. For the FDA update, 40% of articles that first reported the announcement accurately specified that it applies to mesh for prolapse, not incontinence. This ambiguity persisted: half of all articles cited the warning, but only 23% distinguished between prolapse and incontinence. Higher newspaper circulation did not significantly improve the quality of reporting about the content or context of the FDA’s recommendations.

Conclusion: Despite frequent media coverage of transvaginal mesh and its complications since 2011, very few news sources that cited the FDA warning distinguished between prolapse and incontinence. Given prevalent reporting of mesh-related litigation, the findings raise concern about how patients perceive the safety and efficacy of transvaginal mesh, regardless of indication.
FACTORs INFLUENCING THE RATE OF LOST TO FOLLOW-UP AFTER SUB-URETHRAL SYNTHETIC SLING REMOVAL
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Presented By: Jeannine Foster

Introduction and Objectives: To report on variables that could influence the rate of lost to follow-up (LTF) in women undergoing sub-urethral synthetic sling removal (SSR) for complications of mid-urethral slings (MUS).

Methods: Following Institutional Review Board Approval, a prospectively maintained database of consecutive non-neurogenic women who underwent one SSR only were reviewed. Data reviewed by a third party investigator included distance traveled for appointment, marital status, mode of transportation taken, employment status, whether the patient received primary care from the institution, whether the patient’s last follow-up visit was routine or for ongoing treatment, and type of insurance coverage. Patients were grouped by distance traveled to our tertiary care center: Group 1 (less than 75 miles to the institution), Group 2 (≥ 75 miles, but coming from Texas), and Group 3 those who traveled from out of state. Data for women with LTF was compared to data in those who maintained follow-up > 6 months.

Results: Of 150 women who underwent one SSR only, LTF at greater than 6 months post-operatively was lesser in Group 1 at 22% than in Groups 2 and 3 (34% and 33% respectively)( p=0.2455) (see Table 1). The role of marital status, mode of transportation, employment status, and insurance coverage did not statistically affect the differences between the three groups. In the LTF group, the only significant variable difference was noted for routine visit (39%) versus ongoing treatment (19%) (p=0.0070).

Conclusion: Geographical factors may explain the LTF in women referred for complications of MUS to a tertiary care center. However, other factors such as marital and employment status and insurance coverage did not seem to influence patient’s compliance with follow-up visits. This rate of LTF should be considered in the design of MUS-related clinical research studies.
DE NOVO URGENCY IN A MINORITY POPULATION FOLLOWING INCONTINENCE OR PELVIC ORGAN PROLAPSE SURGERY.
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Presented By: Cristina Palmer

Introduction and Objectives: De novo urgency following incontinence procedures has been estimated from 12 to 30%, studied in largely Caucasian populations. Studies show that Hispanic women report more bother from pelvic organ prolapse, however, they report a greater improvement in quality of life measures from surgical intervention for incontinence than other demographics. The objective of our study was to look at postoperative anticholinergic use, de novo urgency following incontinence procedures in a minority population.

Methods: We performed a retrospective review of patients undergoing suburethral sling or prolapse surgery by a single surgeon at a single institution from 2010-2014. Postoperative anticholinergic use, de novo urgency was identified. Other variables examined were age, BMI, and parity.

Results: 226 women who underwent a suburethral sling or prolapse repair; 172 were Hispanic, 26 Black, and 28 Caucasian. Overall rate of de novo urgency for the total patient cohort is 9.7% (p= 0.386), 9.8% for Hispanic patients (p= 0.212), 11.5% for Black patients (p= 0.314). Of minority patients with de novo urgency, average age was 51.47 (p=0.408), BMI was 31.56 (p= 0.244), and average parity 3 (p= 0.255). Of those in the pelvic organ prolapse group, postoperative urgency developed in three (12%) as compared to 18 in the sling group (17%). In patients with a history of urgency preoperatively, eight (19%) of the pelvic organ prolapse group remained on an anticholinergic postoperatively, and 46 (27%) of the sling patients remained on an anticholinergic after their surgery.

Conclusion: De novo urgency rates for our cohort of minority women was 10%, slightly lower than the established incidence in current literature. We found that positive predictive factors seen in established studies looking at largely Caucasian cohorts were not predictive of postoperative urgency in our minority population. To our knowledge, this is the largest group of minority women studied, looking at de novo urgency rates following incontinence procedures.
Characteristics and Treatments Used in Women with Persistent Genital Arousal Disorder

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Presented By: Brian Odom

Introduction and Objectives: Persistent Genital Arousal Disorder (PGAD) is a rare condition, therefore little is known about its characteristics, few effective treatments are available, and response to treatments have not been well described. We evaluated characteristics and past treatments used in women with PGAD undergoing chronic neuromodulation.

Methods: A retrospective chart review was performed, and a survey was designed and mailed to patients with PGAD who had a staged neuromodulation device implant with tined lead placed at the pudendal nerve. The IRB approved survey assessed patient demographics, symptomatology, previous treatments used and satisfaction with pudendal neuromodulation for PGAD symptoms.

Results: Six patients were evaluated and 4/6 (67%) returned surveys. Mean age of PGAD onset was 50 ± eight years (median 54) and three (75%) were married. PGAD symptoms were most often characterized as unwanted (4/4 patients), distressing (4/4), intrusive (4/4), and throbbing (4/4), tender (3/4), and aching (2/4) feelings at the clitoris (3/4), pubic bone (2/4), vagina (2/4), labia (1/4) groin (1/4) and bladder (1/4). On a 0-10 scale with 0 being not limiting their activities and 10 completely limiting their activities, the mean symptoms score was 9.1 ± 1. The most common triggers that made symptoms worse were wearing tight underwear (4/4 patients), genital pressure (4/4), and any sexual activity (3/4). Symptoms most commonly improved with a cold pack applied to the vaginal area (4/4 patients), distracting oneself (3/4), and exercise (2/4). 3/4 (75%) patients had a concomitant diagnosis of restless leg syndrome. The most effective treatments reported for PGAD symptoms management were pain medications, muscle relaxants, and pudendal nerve block (Table 1).

Conclusion: Although PGAD symptoms are painful and thus, can negatively impact quality of life, few effective treatments exist. More study is needed to describe the characteristics and etiology of PGAD in order to develop effective treatments.
Introduction and Objectives: TVTO has been demonstrated to be an effective treatment for stress urinary incontinence (SUI) in a large number of investigations. While long-term investigation suggests significant improvement in SUI in comparison to baseline, less clear is how symptom benefit evolves over the initial time period after sling placement. We sought to assess longitudinal outcomes over several time points across two-year follow-up.

Methods: This study is a retrospective analysis of prospectively collected data on 96 patients undergoing TVTO. Primary outcomes assessment comprised validated measure of urinary incontinence (ICIQ-FLUTS). Secondary outcomes included quality of life (IIQ-7), in addition to 3-day bladder diary (PPD) and cough test. Outcomes were assessed at baseline, six weeks, 12 months and 24 month post-operatively. Specific focus was placed on changes in SUI outcomes across these time points.

Results: ICIQ domain score for SUI demonstrated significant improvements across all follow-up time points (0.7 ±1.3, 6-week; 0.7 ±1.3, 12-month; 0.9 ±1.4, 24-month) in comparison with baseline assessment (3.8 ±2.9) (p<0.05, all analyses). Similarly, analysis of secondary outcomes demonstrated persistent improvements in IIQ-7, pad use, and cough test (p<0.05, all analyses). No significant benefit was seen in comparison of ICIQ SUI domain and IIQ-7 scores in comparison of six-week vs. one-year and one-year vs. two-year outcomes (p=NS). Only three and three patients reported improvement or deterioration, respectively, in ICIQ SUI domain score ≥2 in comparison of six-week and one-year assessments.

Conclusion: TVTO placement is associated with improvements in a variety of measures of SUI and quality of life. Mean improvements in these outcomes appear to be stable through two-year follow-up. Further, our data suggest that incontinence outcome at six weeks is similar to that observed at longer-term assessment in most patients.
Poster #NM52

ASSESSMENT OF COMMUNICATION TECHNOLOGY ACCESS DURING GLOBAL HEALTH MISSION

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Presented By: David Rapp

Introduction and Objectives: Lack of appropriate post-surgical follow-up creates a significant risk when undertaking short-term international medical mission work. Post-surgical patient interviews are particularly important when treating urinary incontinence, given the subjective nature of outcomes as well as acute complications that can arise. Despite collaboration with local in-country health care practitioners, deficient access to communication technologies represents a barrier to patient follow-up.

Methods: In an effort to better understand communication methods of prospective surgical patients during global health missions to Belize, we performed a questionnaire evaluation of patients presenting for evaluation of urological illness. This assessment was performed as an initial part of a program designed to optimize patient follow-up after surgical intervention.

Results: Fifty-four patients underwent evaluation by a visiting urogynecological surgical team in May 2015. Average patient age was 56 years (range 19-90). Patients traveled an estimated mean distance of 35 miles (range 5-176) from one of six districts with varying population densities (range 17-57 persons/square mile) to seek evaluation. Patients reported having access to various methods of communication as follows: cellular telephone (48 (89%)), home internet (32 (59%)), local internet (28 (52%)), and email (26 (48%)). Cellular phone, email, and local internet was the preferred method of post-operative communication by 40 (74%), 13 (24%), and one (2%) patients, respectively. Mann-Whitney analysis demonstrated a significant effect of age on access to home internet and email (p<0.05). Additional analyses failed to reveal a relationship between residence population density and type of preferred communication.

Conclusion: Patients presenting for surgical evaluation during a Belizean global health mission have access to a variety of communication technologies. Communication preference appears to have a relationship with age but not when comparing urban versus rural residency. Aside from in-person follow-up, our assessment suggests that cellular phone is the best method of contacting patients for follow-up.
DOES THE DEGREE OF CYSTOCELE PREDICT DE-NOVO STRESS URINARY INCONTINENCE AFTER PROLAPSE REPAIR? FURTHER ANALYSIS OF THE CARE TRIAL

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Presented By: Michael Davenport

Introduction and Objectives: Cystoceles may cause urethral obstruction by altering the vesico-urethral angle. Restoration of normal anatomy after vaginal prolapse repair can relieve this urethral "kink", but may unmask stress incontinence (SUI). The association between the severity of cystocele and developing de-novo SUI after prolapse repair however, is poorly understood. We hypothesized that in women undergoing prolapse repair, increasing degrees of bladder prolapse would be associated with increasing rates of post-operative de-novo SUI.

Methods: We performed a secondary analysis of the Colpopexy and Urinary Reduction Efforts (CARE) trial data. Using the control arm (women undergoing prolapse repair without a prophylactic SUI procedure), we identified de-novo SUI using a composite definition based on original trial criteria. We performed logistic regression to evaluate the relationship between the degree of cystocele and the development of new SUI.

Results: Of the 168 women who underwent abdominal sacrocolpopexy alone, 53% developed de-novo post-operative SUI. Stratifying by the degree of anterior prolapse (point Ba), we found a linear increase in the rate of SUI with worsening preoperative cystocele. The incidence of de-novo SUI based on tertile of anterior prolapse from least to most severe, was 41.7%, 53.3% and 63.3%, respectively (Table 1). Point Ba was found to be significant for predicting de-novo SUI on both univariate (OR=1.17 3, p-value 0.015), and multivariate analysis (OR=1.16, p-value 0.04).

Conclusion: The incidence of de-novo SUI after prolapse repair directly correlates to the degree of cystocele on preoperative exam. This novel finding should provide a simple tool to help counsel continent patients prior to prolapse surgery in regards to their risk of developing post-operative SUI.
Podium #19
HOW USEFUL ARE URODYNAMICS IN THE PREOPERATIVE ASSESSMENT OF WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE?
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Presented By: Dianne Glass

Introduction and Objectives: Preoperative urodynamic studies (UDS) are frequently performed before pelvic organ prolapse (POP) surgery to assess urethral and bladder function. The primary goal of this study was to look at how preoperative UDS are utilized in the preoperative evaluation of POP regardless of indication for performing them.

Methods: A retrospective chart review of patients that underwent POP surgery (stage 2-4) by one of four board-certified specialists in Female Pelvic Medicine and Reconstructive Surgery between 6/2010 and 2/2015, was performed. Subjects were identified by review of the electronic medical record CPT four codes for POP surgery. Charts were reviewed to identify the indication(s) for ordering UDS. Video UDS were performed in all cases. The indications were classified into four general categories for assessment: 1) determination of occult SUI only, 2) overactive bladder symptoms (subdivided into wet and dry), 3) voiding dysfunction (obstructive symptoms and/or elevated post void residual), and 4) mixed or insensible incontinence. Further chart review was performed to identify if any change in management was directly attributable the UDS results prior to surgery. In order for placement of a sling to be considered an action based on UDS, subjects needed to have a negative supine stress test with/without POP reduction and UDS SUI with POP reduction.

Results: 391 charts were reviewed. 348 met criteria for inclusion in our study. Of the patients, 7.2% were evaluated solely for occult SUI: 90.5% had OAB symptoms (56% wet, 34.5% dry): 16.1% had emptying/obstructive symptoms: 36.8% had mixed incontinence. Of the 348 subjects meeting inclusion criteria 95 subjects (27.3%) had alteration in their management based on the results of the UDS. The most common intervention was the placement of a mid-urethral sling.

Conclusion: Though UDS is a valuable tool to assess for occult stress urinary incontinence, its utility outside of this indication in the preoperative prolapse patient appears to be limited.
Podium #20
THE IMPACT OF SURGEON EXPERIENCE ON THE COMPLICATIONS OF TRANSVAGINAL PROLAPSE MESH
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Presented By: Erin Kelly

Introduction and Objectives: Warnings related to transvaginal mesh have been issued by the United States FDA and Health Canada. The objective of this study was to assess the impact of surgeon experience on vaginal mesh complications, and to determine if there are risk factors associated with vaginal mesh complications.

Methods: We conducted a retrospective, population-based study using administrative data. We included all women who underwent a mesh based prolapse procedure between 2002-2013 in Ontario, Canada. Our primary outcome was surgical revision/removal of the mesh. Our primary exposure was surgeon volume: high volume surgeons were defined as >75th percentile of mesh implanters in a given year, and very high volume surgeons were defined >90th percentile. Other covariates included age, obesity, diabetes, health care utilization, comorbidity, socioeconomic status, surgical specialty, prior/simultaneous pelvic surgical procedures, length of stay, and blood transfusion. Primary analysis was an adjusted Cox proportional hazards model.

Results: We identified 5,488 women who underwent transvaginal mesh implantation for pelvic organ prolapse by one of 368 unique surgeons. Patients had a median followup of 5.4 (IQR 2.9-8.0) years. The cut-off for being defined as a high volume surgeon (75th percentile) was a median of five procedures/year, and for a very high volume surgeon (90th percentile) it was 13 procedures/year. 220 women (4.0%) underwent surgical revision of vaginal mesh a median of 5.6 (IQR 3.1-8.2) years after implantation. At 10 years follow-up the cumulative incidence of mesh removal was 4.9%. There was a lower probability of surgical intervention for vaginal mesh complications with increasing surgeon volume in a given year: patients of high volume surgeons had an adjusted hazard ratio (HR) of 0.85 (95% CI 0.57-1.28), and very high volume surgeons had an adjusted HR of 0.52 (95% CI 0.35-0.78) for operative mesh revision. In multivariable modeling, intra/post-operative blood transfusion (HR 2.99, 95% CI 1.46-6.12), increased medical comorbidity (HR 1.29, 95% CI 1.07-1.55), and prior stress incontinence surgery (HR 1.62, 95% CI 1.12-2.36) were all significantly associated with future vaginal mesh revision.

Conclusion: After 10 years of follow-up, 1/20 women had surgical revision of vaginally placed prolapse mesh. There is a significantly lower risk of these complications among surgeons providing the highest volume of these procedures.
THE TRUTH BEHIND TRANSVAGINAL MESH LITIGATION: DEVICES, TIMELINES, AND PROVIDER CHARACTERISTICS

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Presented By: Lauren Wood

**Introduction and Objectives:** Due to an increasing number of complications reported, the FDA communicated concerns regarding synthetic mesh safety for vaginal reconstructive surgery to the public in 2008 and 2011. The 2011 notification focused on prolapse mesh, and excluded slings. The purpose of this work was to conduct a detailed analysis of these mesh claims to determine their key characteristics.

**Methods:** A search of the Bloomberg Law Database was conducted to identify product liability claims against mesh manufacturers filed in federal courts from January 2000 -October 2014. A 1% random sample was generated, and legal documents related to these claims were evaluated. The device name was used to interpret whether the mesh was used to treat POP or SUI.

**Results:** 73,915 claims were evaluated. The 1% random sample included 739 claims. 29 claims were eliminated as they were unrelated or had incomplete information. 450 claims (63.3%) involved slings for SUI, and 95 claims (13.3%) involved mesh for POP. 165 claims (23.2%) involved both. The most common type of mesh mentioned in claims was retropubic slings at 30.2% (289/955), followed by transobturator (TOT) slings at 27.1% (259/955) (Figure 1). Many cases involved more than one mesh device. The time interval from surgery date to legal claim filing date was 5.3 years (95% CI 5.0 -5.5) for slings, 5.3 years (4.7 -5.9 95% CI) for POP mesh, and 4.8 years (95% CI 4.4 -5.2) for slings and POP mesh implanted concurrently. Only four cases named providers as co-defendants in the case. 88% (627/715) of providers listed as the implanting provider were not board certified in FPMRS, though some cases involved more than one provider.

**Conclusion:** Although the 2011 FDA notification applies to the use of mesh with vaginal prolapse surgery, the majority of claims reviewed involved slings for the treatment of SUI. When a single product is implanted the average interval to filing a legal claim is similar between slings and POP mesh. Providers are rarely named as defendants in suits, but of the providers who were named as implanting surgeons, only a small percentage were board certified in FPMRS.
IMPROVEMENT OF POSTOPERATIVE PAIN FOLLOWING VAGINAL RECONSTRUCTIVE SURGERY USING LIPOSOMAL BUPIVACAINE

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Presented By: Mohamed Keheila

Introduction and Objectives: Postoperative pain is common after vaginal reconstructive surgery and contributes to decreased overall patient satisfaction and increased health care costs due to prolonged hospital stay and use of narcotic pain medication. Additionally, narcotics can be associated to nausea, delayed bowel function, and possible drug dependence. Postoperative pain management is not standardized. This pilot study evaluates a longer acting local anesthetic, liposomal bupivacaine, in patients undergoing vaginal reconstructive surgery for post-operative pain control.

Methods: Patients, who underwent vaginal reconstructive surgery between January, 2014 and August, 2015, were divided into two groups: (1) The therapy group consisted of patients, who received 20 ml intraoperative local liposomal bupivacaine injections; (2) The non-therapy group didn’t receive liposomal bupivacaine. The two groups were matched for age, body mass index, and type of surgery. We analyzed lengths of hospital stay, postoperative opioid use, and postoperative pain scores (Scale 1-10). Fisher's Exact Test was used for categorical and the Kruskal-Wallis Test for continuous variables. Narcotic use was calculated using morphine equivalent dose (MED).

Results: Out of 79 patients, who underwent vaginal reconstructive surgery, 41 patients underwent rectocele and cystocele repair, 38 underwent only cystocele repair, and 43 a sling placement. Fifteen patients received liposomal bupivacaine injections (therapy group) and matched to 64 patients (non-therapy group), who did not receive the injections. The therapy group had a significant lower pain score (1/10) compared to the non-therapy group (3/10) (p=0.03). In the therapy group more patients (67%) had no pain (0/10 pain score) when compared to patients in the non-therapy group (23%) (p=0.004). 11 patients (73%) in the therapy group and 24 patients (44%) in the non-therapy group left hospital on the same day (p=0.03). There was a significant lower consumption of opioid use in the therapy group (4.4 mg MED) (range: 0-28 mg MED) when compared to the non-therapy group (14.1 mg MED) (range: 0-70mg MED) (p=0.01).

Conclusion: The use of intraoperative local liposomal bupivacaine injection in patients undergoing vaginal reconstructive surgery is well tolerated and contributes to reducing postoperative pain, use of narcotics, and hospital stay.
Podium #23
IATROGENIC URETERAL INJURY FROM HYSSTERECTOMY IN THE ERA OF MINIMALLY INVASIVE SURGERY: A NATIONAL ANALYSIS OF TRENDS, RISK FACTORS, AND OUTCOMES
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Presented By: Vignesh Packiam

**Introduction and Objectives:** Iatrogenic ureteral injury (UI) is a known complication of hysterectomy. Minimally invasive (MI) approaches for abdominal hysterectomy have an unclear impact on the risk of UI. We examined trends, risk factors and outcomes of iatrogenic UI during abdominal hysterectomy with regard to MI approaches. We also assessed clinical outcomes based on approach of repair.

**Methods:** We queried the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database from 2005 to 2013 to identify abdominal (open (OH) or minimally invasive (MIH)) and vaginal hysterectomies (VH). UI was identified based on intra-op surgical repair or delayed repair/stent placement. Univariate analysis and multivariate logistic regression were used to identify risk factors for UI during abdominal hysterectomy. For patients who had UI during MIH, we compared MI vs. open repair in terms of 30-day outcomes.

**Results:** There were 310 cases of UI in 100,143 hysterectomies (0.31%). The rate of UI was 0.21% for OH, 0.45% for MIH and 0.08% for VH (p<0.01). The most common surgical repairs for UI were MI ureterorrhaphy (64%), open ureteral reimplant (17%) and MI ureteral reimplant (10%). Interestingly, increasing BMI was protective for UI (p<0.01). Although the presence of any trainee was not a risk factor for UI (p=0.92), senior resident involvement (PGY-3 or greater) was associated with UI (P<0.01). On multivariate analysis, MIH (OR 3.97 [1.99 -7.91], p<0.01) and senior resident involvement (OR 3.68 [2.11-6.42], p<0.01) were independently associated with UI. For patients who had an intra-op UI repair during MIH (n=206), 90% of patients underwent MI repair while 10% patients underwent converted to open repair. There was no significant difference in age, BMI, ASA class, or resident involvement between patients with MI vs. open repair (all p>0.05). Patients undergoing MI vs. open repair had a shorter OR time (mean 178 +/- 77 vs. 376 +/- 121 minutes, p<0.01) and shorter length of stay (median 1 IQR (1-1) vs. 3 (3-4) days, p<0.01) but similar overall complications (19% vs. 11%, p=0.31) and readmissions (5% vs. 5%, p=0.98).

**Conclusion:** To our knowledge, this is the largest national series assessing iatrogenic UI during hysterectomy. MIH is a risk factor for UI. For patients undergoing MIH with IU, a concurrent MI repair resulted in shorter length of stay but otherwise similar 30-day outcomes.
**Introduction and Objectives:** To evaluate mid-term outcomes after sub-urethral removal of single synthetic sling in women.

**Methods:** We reviewed a prospectively maintained database of 360 consecutive women who underwent sub-urethral sling removal (SSR). We excluded patients who had neurogenic bladder, underwent excision of non-synthetic sling or multiple slings, had prior mesh, underwent concomitant surgery at time of sling excision, presented with urethral erosion, or had ≤6 months follow-up data. Patient demographics, type of sling, indications for removal, time to removal, and patient-reported outcomes were recorded. All SSR were performed transvaginally under general anesthesia with removal of as much sling as possible. Outcomes were stratified by self-reported symptoms at each follow-up visit. Ideal outcome or “cure” was defined as continent, pain-free, sexually active if active preoperatively, and not requiring any subsequent surgical or medical interventions.

**Results:** 110 patients were included for analysis from 2005-2015, with mean age 55 (28-88), mean BMI 27 (20-48) and mean length of follow-up at 24 months (6-114). SSR was performed mostly after retropubic sling (70%). Presenting symptoms are listed in the Flow Chart. Mean duration from synthetic sling placement to removal was 54 months (range 1-166). After removal, SUI, UUI, and MUI persisted in seven (47%), six (23%), and 13 (34%) patients respectively, and occurred de novo in 22 (20%), nine (8%), and 22 (20%) respectively. Of 66 women with dyspareunia, 24 (36%) resumed sexual activity. Pelvic pain resolved in 49/80 (61%). Women with vaginal sling exposure (21) had no recurrence. UTIs persisted in 24/66 (36%). Of 91 women with voiding dysfunction or incomplete emptying before SSR, 10 had persistent voiding dysfunction or incomplete emptying postoperatively requiring additional therapy. 25% were cured following SSR per our ideal outcome (flow chart).

**Conclusion:** At mean follow-up of two years, 25% of patients were cured after SSR. While many demonstrated improvement in presenting symptoms, a subset required additional reconstructive surgical procedures for residual pain/dyspareunia or urinary incontinence. This information can serve for counseling before SSR.¹ Coskun IUJO 26:557-62, 2015
FEMALE GENITOURINARY FISTULAS IN THE DEVELOPED WORLD: AN ANALYSIS OF DISEASE CHARACTERISTICS, TREATMENTS AND COMPLICATIONS USING A NATIONAL DATABASE
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Presented By: Marissa Velez

Introduction and Objectives: Genitourinary (GU) fistulas are relatively uncommon in developed countries. We wanted to analyze patient characteristics, complications and surgical trends associated with GU fistulas from a national database. Methods: Current Procedural Terminology was used to identify patients undergoing repair of GU fistulas from the American College of Surgeons National Surgical Quality Improvement Project (NSQIP) database. Logistic regression analysis was used to identify characteristics associated with complications. Results: From 2006 to 2013, 220 patients underwent repair of vesicovaginal fistula (VVF) (n=171), urethrovaginal fistula (UVF) (n=28) and vesicouterine fistulas (VUF) (n=6). Mean age was 50.2±11.6 years. A large proportion of patients were obese/overweight (73.2%) and smokers (29.5%). Predominant comorbidities included heart disease (24.4%) and type 2 diabetes (9.5%). 2.2% of patients were chronic steroid users. The proportion of repairs done by urologists compared to gynecologists has increased over time. In 2006 50% of procedures were done by urologists. By 2013, this had increased to 71%. Mean operative time was 167±109 minutes and mean length of stay was 2.25 ± 2.30 days. 53.5% of vesicovaginal and vesicouterine fistula repairs were done by vaginal approach as well as all urethrovaginal fistula repairs. Concomitant procedures included hysterectomy (n=9), slings (n=7), and reconstructive flaps (n=15). Urologists were significantly more likely to perform flap procedures than gynecologists (9.8% vs. 1.5% p=0.029). Post-operative complications occurred in 30% of patients. The most common complication was urinary tract infection (18.1%). Other complications included wound infection/dehiscence (3.1%), sepsis (2.8%), blood transfusion (2.8%) and DVT (0.04%). In multivariate regression analysis ASA Class 3 and abdominal approach were significant predictors of complications 30 days post-op (p=0.02, p=0.03). Conclusion: In the United States, female GU fistulas remain a rare entity. Diabetes and heart disease are the most commonly associated comorbidities. Approximately half of VVFs and VUFs were repaired via vaginal approach. Complications from fistula repair are not uncommon; however, the proportion of severe complications is low. ASA class 3 and abdominal approach appear to be independent risk facts for complications.
Podium #26

COMPREHENSIVE CHARACTERIZATION OF INNERVATION ZONES OF THE PELVIC FLOOR AND ANAL SPHINCTER WITH HIGH-DENSITY INTRARECTAL AND INTRAVAGINAL EMG PROBES

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Presented By: Yingchun Zhang

Introduction and Objectives: Knowledge of the innervation of pelvic floor and sphincter muscles is of great importance to the pathophysiology of pelvic floor dysfunctions. However, current innervation zone mapping methods are limited. A comprehensive innervation zone (IZ) mapping technique was developed in this study to characterize the distributions of IZs of both the pelvic floor muscles and anal sphincter at different depths, from high-density surface electromyography (EMG) recordings using our newly developed intra-vaginal and intra-rectal surface EMG probes.

Methods: The intra-vaginal and intra-rectal probes were mounted with a high-density (eight-by-eight) surface EMG electrode grid (Figure 1a). Surface EMG signals were acquired using the probes in 10 healthy female subjects, during their maximum voluntary contractions of the pelvic floor (Figure 1b). EMG decomposition using the K-means clustering and convolution kernel compensation (KmCKC) approach was performed on the acquired high-density surface EMG signals to separate the motor unit action potentials and localize their innervation zones.

Results: High density surface EMG signals were successfully acquired over the intravaginal and intrarectal surfaces. The propagation patterns of muscle activity along muscle fiber direction were clearly visualized for multiple muscle groups for the pelvic floor and anal sphincter. Up to 218 repetitions of vaginal motor units and 456 repetitions of rectal motor units were detected during each contraction. Motor unit action potentials were separated with their IZs identified at various orientations and depths. Figure 1c shows an example of two MUs separated from the intrarectal probe signals. The IZ location was marked by the red rectangles. Compared with vaginal signals, the anorectal muscle fibers encompassed the lumen more completely (Figure 1d).

Conclusion: The novel EMG probes are capable of providing comprehensive neuromuscular functional mapping of the pelvic floor and sphincter muscles. They can be employed as diagnostic and preventative tools in clinical practice as well as instruments to understand pelvic muscle crosstalk and synergy.

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*** 2016 Clinical Science Prize Essay Award Winner: Yun Peng, MSc
Male Incontinence/Urodynamics/Neuromodulation Moderated Poster Session
Friday, February 26, 2016
8:30 a.m. – 10:00 a.m.
Moderators: Priya Padmanabhan, MPH, MD
Larry T. Sirls, II, MD

Poster #M27
URODYNAMIC FINDINGS IN MEN WITH AND WITHOUT DIABETES: DO DIFFERENCES EXIST?
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Presented By: Ifeanyi Onyeji

Introduction and Objectives: Classic diabetic cystopathy has been described as decreased sensation, increased capacity, impaired contractility, and elevated post void residual (PVR). Few studies examine urodynamics (UDS) findings in diabetic men and to date no comparative studies exist. Our aim was to compare UDS in men with and without diabetes mellitus (DM) from a contemporary database.

Methods: From a multi-center UDS database (2010 – 2015), 221 studies were identified. Studies were performed according to International Continence Society Standards. For significance, Fischer’s exact and Students t-tests were performed.

Results: 70(31.6%) men had DM. Those with DM were older (64.37±15.4 vs 57.4±15.5 years p<0.05). 16 patients had insulin-dependent DM and 54 had non-insulin-dependent DM. Indications for UDS and presenting voiding and storage symptoms were mostly similar in both groups. Diabetics were more likely to complain of decreased stream (35.7% vs. 16.6, p=0.003) and pelvic pain (4.3% vs. 0%, p=0.031). On UDS, between groups there was similar capacity (320.4ml DM vs 328.4ml, p =0.76), similar volume at first urge (230.6ml vs 211.8ml p=0.36) and similar PVR (62cc vs. 55cc p=0.67). No differences were seen in presence of detrusor overactivity (63% DM vs. 61%, p = 0.88) or detrusor underactivity (19% vs. 20%, p = 1). A larger proportion of men with DM demonstrated abdominal straining during voiding (37% vs. 28%, p=0.20). Urodynamic diagnoses were also similar between the two groups, with the most common diagnoses being detrusor overactivity (60%), bladder outlet obstruction (55%), detrusor overactivity incontinence (48%), and incomplete emptying (46%), However diabetics were less likely to be diagnosed with poor compliance (5.7% vs 23.8% p=0.001).

Conclusion: In this unique contemporary comparative series, similar presenting complaints and urodynamic diagnoses were observed in men with and without DM presenting with voiding dysfunction. There was little evidence of classic diabetic cystopathy. However, men with DM had a tendency towards perceiving decreased stream and pelvic pain. Larger studies are required to further evaluate small differences between the groups and to determine their clinical relevance.
"REAL-WORLD" EFFECTIVENESS OF PERCUTANEOUS TIBIAL NERVE STIMULATION

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Presented By: Yahir Santiago-Lastra

Introduction and Objectives: The aim of this study is to determine the effectiveness of percutaneous tibial nerve stimulation (PTNS) in patients with overactive bladder (OAB) symptoms in a real-world clinical setting.

Methods: We retrospectively identified patients who underwent PTNS using current procedural terminology (CPT) codes and used the electronic medical record to obtain our study information.

Results: 75 patients were included in our study. Mean patient age was 66.8 years, and 53 patients (70.7%) were female. 67 (89.3%) patients tried an OAB medication. The mean number of prior medications trialed per patient was 1.7. 25 (33%) of the patients were continued on an OAB medication during the 12-week treatment period. When compared to patients who underwent stand-alone PTNS, the patients who received PTNS alongside an OAB medication were more likely to transition to maintenance therapy (p<0.002). 46 patients (61.3%) completed the 12-week treatment period. 25 of those patients who completed the 12-week induction period went on to monthly maintenance therapy (54%). This was considered a surrogate for treatment success. All patients who completed the 12-week treatment period and went on to maintenance treatment reported at least a 50% improvement. Of the 29 patients who did not complete the 12-week induction course, 12 patients (16%) dropped out because of no improvement, 6 (8%) dropped out because of competing comorbidities preventing completion of therapy, and FIVE patients (6.7%) dropped out because of lack of insurance coverage. 15 patients (20%) were lost to follow-up. Some of these patients went on to other treatment modalities such as OAB medication (N=5), mirabegron (N=11), neuromodulation (N=4), botulinum injections (N=5) and physical therapy (N=1).

Conclusion: This is the first report of institutional results of PTNS for OAB to include both male and female patients. Most patients who underwent this treatment modality at our institution had already failed treatment with at least one bladder medication and many had undergone other treatment modalities for OAB. PTNS is an easy-to-implement treatment modality for refractory OAB with a very low complication rate. However, a considerable percentage of patients who pursue PTNS as a treatment modality will end up crossing over to another treatment. The patients who are offered PTNS as an adjunct to medical therapy appear to have the greatest overall symptomatic improvement.
Outcomes of Sacral Neuromodulation in Patients with Prior Surgical Treatment of Stress Urinary Incontinence and Pelvic Organ Prolapse

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Presented By: Jamie Bartley

Introduction and Objectives: To evaluate prior stress urinary incontinence (SUI) or pelvic organ prolapse (POP) surgery’s impact on sacral neuromodulation (SNM) outcomes.

Methods: Women enrolled in our prospective database that had SNM and urinary incontinence (UI) were grouped by history/no history of SUI/POP surgery. Outcomes, measured at three, six, 12 and 24 months with voiding diaries, Interstitial Cystitis Symptom/Problem indices (ICSI-PI), Overactive Bladder Symptom Severity (OAB-q SS)/Health related quality of life (HRQOL), and Global Response Assessment (GRA) were analyzed with Pearson’s Chi-square, Fisher’s Exact, and Wilcoxon rank sum tests.

Results: Of the 108 of 210 women with prior SUI/POP procedures, more had prior hysterectomy (p<0.001). Stage 2 implant rates were similar between groups. On diaries, SUI/POP group had more UI episodes/day at one year (p=0.027) and lower volume/void at two years (p=0.041). ICSI-PI, OAB-q SS and HRQOL did not differ between groups at any time point. ICSI-PI scores improved over time (p<0.0001 for both groups). A higher proportion of SUI/POP patients leaked urine at six months (92% vs. 73.2%; p=0.009) and 12 months (92% vs. 67%; p= 0.002); a lower proportion (40% vs. 60%; p=0.037) had improved urgency at six months on GRA. Fewer SUI/POP patients reported moderately/markedly improved symptoms at 12 (51% vs. 71%; p=0.045) and 24 months (42% vs. 66%; p= 0.031). Satisfaction rates were similar between groups and the majority in each group would undergo SNM again.

Conclusion: Although SNM improves voiding symptoms in women with prior SUI/POP procedures, underlying voiding/pelvic floor dysfunction may limit level of improvement.
Poster #M30
RATE AND RISK FACTORS FOR SACRAL NERVE STIMULATOR LEAD BREAKAGE AT THE TIME OF LEAD REVISION OR EXPLANTATION
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Presented By: Javier Pizarro-Berdichevsky

Introduction and Objectives: Sacral neuromodulation is a highly effective therapy; however, up to 30% of patients who undergo sacral nerve stimulator (SNS) implantation will require lead revision within five years. Lead breakage can occur during revision, but the rate of breakage and the risk factors associated with it are not well described in the literature. The aim of this study is to describe the rate of lead breakage in our institution and identify potential risk factors for breakage.

Methods: A retrospective review of all SNS lead revisions or explantations performed in the urology department at a tertiary care center between 2010 and 2015 was performed. The clinical, demographic characteristics and lead breakage rate were analyzed. Descriptive statistics are presented as percentages, mean±SD or median (interquartile range). T-test, Mann-Whitney U, Chi-Square or Fisher exact tests were used as appropriate. A logistic regression analysis was performed for incomplete lead removal as the dependent variable that included variables with p values < 0.1 in the univariate analysis as well as other clinically relevant variables. A p<0.05 was considered statistically significant.

Results: Between 2010 and 2015, 119 patients underwent a lead revision or explantation. 116 patients were included in analysis. Patients were predominantly female (91.2%) with a mean age of 56.2±16.2 and mean BMI 29.6±7.6. Overactive bladder (OAB) was the most common indication for SNS (82.3%). The lead was removed intact in 81.9%. On univariate analysis, months since initial implantation – 35.2 (15.2-59.6) vs 56.6 (52.3-79.8), p=0.003; diabetic status – 11.6% vs 33.3%, p=0.029; and provider - rate of incomplete removal ranging between 0-20%, p=0.05 were independent risk factors for lead breakage. On multivariable analysis that included age, gender, BMI, time since implant, diabetic status and provider, only time since implantation and diabetic status were statistically significant risk factors (OR 0.98, CI 95% 0.96-0.99 and OR 3.5, CI 95% 1.05-11.5, respectively).

Conclusion: The overall risk of lead breakage at the time of revision or explantation is approximately 18%. Significant risk factors that increase the rate of breakage are increased time since implantation and diabetes. These findings may be valuable for patient counseling before SNS revision. Prospective studies are needed to better identify other risks factors and to develop prevention strategies.
Poster #M31

ASSESSMENT OF BATTERY LIFE OF THE 2ND GENERATION IMPLANTABLE PULSE GENERATOR IN A PRACTICE OF HIGH VOLUME IMPLANTERS

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Presented By: Daniel Liberman

Introduction and Objectives: Sacral neuromodulation (SNM) is now an accepted treatment of medically refractory bladder symptoms. The manufacturer lists the battery life of the second generation Implantable Pulse Generator (IPG) at 4.4 years (2.5-5.4), which has been confirmed in small trials with very few patients. Our objective was to assess the IPG battery life in a practice of high volume SNM implanters. We hypothesize that battery life would be longer than the manufacturer’s estimate in the hands of high volume implanters achieving lower sensory and motor thresholds during lead placement.

Methods: We retrospectively reviewed the charts of 969 patients from July 2006 to September 2015 who had the second generation IPG implanted by five high volume implanters from Metro Urology. In general as a practice pattern, providers try to achieve motor and sensory responses below 1 volt for all electrodes during lead placement. Demographic information including age, gender, indication for SNM, date of initial IPG placement as well as date and reason for IPG revision were included in this analysis. Chi squared analysis and Spearman’s rank correlation was used to determine differences in battery life to the above-mentioned demographic information.

Results: A total of 216 revisions were performed for patient with second generation IPGs whereby 28 patients were identified who had revision of their IPG because of end of service. Median age at revision was 53 years old (range: 17-84 years old). The median battery life for this entire cohort was 56 months (range: 11-84 months). There were no statistically significant differences in battery life when compared to age at revision, bladder symptom type (overactive bladder vs. idiopathic non-obstructive urinary retention) or surgeon (all p>0.05).

Conclusion: The median Battery life estimate in a busy private practice of high volume SNM implanters was found to be consistent with the manufacturer’s estimates (4.7 years). In our cohort, 28 out of 216 revisions were for end of life of the battery. We would expect battery life to increase as our cohort matures over time.
CHRONIC NEUROMODULATION AS A TREATMENT FOR PERSISTENT GENITAL AROUSAL DISORDER

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Presented By: Brian Odom

Introduction and Objectives: Persistent Genital Arousal Disorder (PGAD) is a rare condition that is characterized by unwanted, uncomfortable genital sensations and/or spontaneous ejaculation without physical or emotional stimulation. Although little is known about the etiology of PGAD and there is a lack of effective treatments, research suggests a potential correlation with pudendal nerve neuropathy. As a result, we evaluated the effects of pudendal nerve stimulation on PGAD symptoms.

Methods: A retrospective chart review was performed on patients with PGAD who underwent pudendal neuromodulation for symptom management. Demographic, operative and postoperative data were collected. In addition, a survey was sent to assess patient demographics, symptoms pre and postoperative and overall patient satisfaction. Descriptive statistics were performed.

Results: Six female patients met inclusion/exclusion criteria. Mean age at implant was 52 ± 9 years. Three of six had a lead migration at an average 13 days postoperative and underwent a successful revision of their pudendal lead. Five of six (83%) patients were still implanted at time of survey average of 38 months post implantation. One was removed due to non-use. In the four of six (67%) that completed and returned surveys all still used their pudendal neuromodulation device. Preoperatively, four of four (100%) patients had experienced symptoms continuously throughout the day. Postoperatively, two of four (50%) had symptoms only once per week, 1/4 (25%) continuously throughout the day, and one of four (25%) did not state the frequency of symptoms. Four of four (100%) indicated pudendal neuromodulation improved their PGAD symptoms. Three of four (75%) met their treatment goals of reducing PGAD symptoms, and were satisfied with pudendal neuromodulation. One of four (25%) was only moderately satisfied with their treatment, however indicated they would undergo pudendal neuromodulation again. In four of four (100%) patients, pudendal neuromodulation was considered more effective than pudendal nerve blocks. When asked to rate past treatments used for PGAD, three of four (75%) indicated pudendal neuromodulation was most helpful. Pudendal neuromodulation also improved symptoms of chronic pelvic pain (4/4 patients), bowel function (3/4), and bladder function (3/4).

Conclusion: Our preliminary study suggests that chronic pudendal neuromodulation may decrease the frequency of PGAD symptoms and provide symptomatic relief. Future prospective study is warranted.
Poster #M33
ARTIFICIAL URINARY SPHINCTER MECHANICAL FAILURES: IS IT BETTER TO REPLACE THE ENTIRE DEVICE OR JUST THE MALFUNCTIONING COMPONENT?
Brian Linder, MD; Boyd Viers, MD; Matthew Ziegelmann, MD; Marcelino Rivera, MD; Laureano Rangel, MS; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Brian Linder

Introduction and Objectives: To evaluate the characteristics of Artificial Urinary Sphincter (AUS) mechanical failures and compare outcomes based on surgical revision strategies.

Methods: There were 1802 male patients with stress urinary incontinence who underwent AUS procedures at our institution from 1983 to 2011 of which 1082 were primary placements. Of these, 125 experienced device malfunction with fluid loss from the system and underwent device revision, and comprised the malfunction cohort. Multiple clinical and surgical variables were evaluated for potential association with device malfunction. Additionally, we evaluated for predictors of failure of the revised device, defined as any tertiary surgery.

Results: With a median follow-up of 4.2 years (IQR 0.8, 7.9), 125 patients had a device malfunction. The urethral cuff was the most common component failure (46%), followed by the abdominal reservoir (23%). When evaluating multiple clinical factors among primary implantations, only patient age was associated with the risk of subsequent device malfunction (HR 0.97, p=0.005). Among those undergoing revision for malfunction, time from primary surgery to device failure (HR 0.89; p=0.33) and revision of the entire device compared to a single component (HR 0.47; p=0.15) there was no evidence to prove an association with the risk of tertiary surgery. Additionally, there was no significant interaction between these variables (HR 1.11, p=0.39). However, there was a trend toward improved 5-year device survival after revision with replacement of the entire device compared to a single component (67% vs. 39%; p=0.10) (Figure 1).

Conclusion: Time to mechanical failure is not useful in guiding decision making in the management of mechanical AUS failure. Replacing the entire device, rather than a single component may offer improved device survival.
Poster #M34
LONG-TERM SUBJECTIVE AND FUNCTIONAL OUTCOMES OF PRIMARY AND SECONDARY ARTIFICIAL URINARY SPHINCTER IMPLANTATIONS AMONG MEN WITH STRESS URINARY INCONTINENCE
Boyd Viers, MD; Marcelino Rivera, MD; Brian Linder, MD; Laureano Rangel, MS; Matthew Ziegelmann, MD; Daniel Elliott, MD
Mayo Clinic, Rochester, MN
Presented By: Boyd Viers

Introduction and Objectives: Among men with stress urinary incontinence, implantation of an artificial urinary sphincter (AUS) remains the gold standard treatment option. However, evidence suggests that secondary AUS implantations may be associated with inferior continence outcomes. Nevertheless, there remains a paucity of data regarding subjective and functional outcomes following implantation. As such, the objective of our study was to evaluate long-term differences in a patient’s quality of life following primary and secondary AUS implantation.

Methods: From 1983-2011, 1403 primary or secondary AUS surgeries were performed. Men were invited to participate in a mail-in survey assessing AUS status, patient satisfaction, and urinary control. Primary (N=742) and secondary (N=191) AUS devices without an event at the time of survey completion were included for analysis. Differences in survey responses and clinical characteristics were assessed. Logistic regression models were used to evaluate characteristics associated with patient satisfaction and urinary continence.

Results: In total, 229 (31%) and 49 (26%) men with an intact primary or secondary AUS completed the survey with a median follow-up of 8.3 years (IQR 5.8-11.4). Relative to secondary AUS implants, men with a primary device were more likely to have prior radiation therapy (28% vs. 14%; p=0.05) with no differences in other clinical characteristics. For both primary and secondary AUS devices, men reported a high likelihood of electing to have AUS surgery again (90% vs. 94%; p=0.45) and recommending AUS surgery to a family member with a similar problem (91% vs. 96%; p=0.12). There was no significant difference in urinary continence outcomes between cohorts with men noting substantial improvement in urinary control following surgery (74% vs 68%; p=0.87), minimal bothersome leakage (64% vs. 55%; p=0.86), and 56% vs. 55% wearing ≤1 pad/day (p=0.66). On logistic regression analysis no clinical variables, including secondary implantation, history of mechanical failure, or non-mechanical failure, were associated with satisfaction or urinary continence outcomes.

Conclusion: In a large cohort of patients with intact primary and secondary AUS implants we noted a high-level of satisfaction and modest urinary control at a median follow-up of 8 years. Importantly, we found no differences in quality of life outcomes among secondary devices including those men with non-mechanical failure.
Poster #M35
OVERACTIVE BLADDER AND URGENCY INCONTINENCE IN MEN UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT
Christopher Gomez, MD
University of Miami Department of Urology, Miami, FL
Presented By: Christopher Gomez

Introduction and Objectives: A significant cohort of men have overactive bladder (OAB) or urgency urinary incontinence (UUI) after prostate cancer treatment but little is known about their outcomes after artificial urinary sphincter (AUS) placement. Our objective was to identify men who were undergoing (AUS) placement for stress incontinence and evaluate the incidence and resolution of OAB/UUI.

Methods: Data was available for 50 men who underwent placement of an AUS (AMS 800) device at University of Miami Hospital by a single surgeon. Data was evaluated for the incidence of OAB/UUI pre and post-AUS. Fisher’s exact test was used to evaluate the association of radical prostatectomy (RP), radiation therapy (XRT) and bladder neck contracture (BNC) on the incidence and persistence of OAB or UUI.

Results: Fifty men undergoing AUS implantation were identified. 29 of these men had RP alone while 21 had either XRT alone or in conjunction with RP. 51% of all men had pre-AUS OAB (31% RP, 83%XRT, 73%RP+XRT) while 39% had pre-AUS UUI. 36% of men had post-AUS OAB while 24% had post-AUS UUI. 76% of patient with pre-AUS OAB had continued post-AUS OAB, and 24% of patients had resolution of OAB post AUS. For prostatectomy patients, 38% saw resolution of their OAB symptoms post AUS while only 20% of radiation patients saw resolution of their OAB symptoms. 58% of patients with pre-AUS UUI had continued UUI after AUS placement while 42% had resolution of their UUI. For prostatectomy patients, 33% had resolution of UUI after AUS placement and 39% of radiation patients saw resolution of their UUI after AUS placement. Any history of radiation treatment was predictive of pre-AUS OAB (p=0.0052), pre-AUS UUI (p=0.0034) and post-AUS OAB (p=0.015), post-AUS UUI (p=0.021). History of BNC or prostatectomy was not predictive of OAB/UUI. Only 1 patient developed de-novo UUI after AUS placement who had previously undergone a prostatectomy without radiation therapy. Pre-op UUI is a predictor of failed AUS (p=0.022) (failure = > 1 security pad/day).

Conclusion: OAB and UUI are prevalent amongst patients undergoing AUS placement. A small but significant number of these patients will have resolution of their OAB/UUI after AUS. Radiation therapy is a predictor for continued OAB/UUI after AUS. This data improves our ability to give realistic outcomes for OAB/UUI patients undergoing AUS.
DOUBLE-LAYER VESICOURETHRAL ANASTOMOSIS ASSOCIATED WITH IMPROVED EARLY CONTINENCE AFTER ROBOTIC RADICAL PROSTATECTOMY

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Presented By: Juan Guzman

Introduction and Objectives: Despite modifications in technique, urinary incontinence after radical prostatectomy (RP) remains a challenging problem, particularly in our Hispanic population with a high rate of obesity and diabetes mellitus. We reviewed our experience with early urinary continence after adopting a double-layer (DL) vesicourethral anastomosis.

Methods: Using our IRB-approved prospective database, 639 consecutive prostate cancer patients treated with robotic RP between 2007 and 2015 were identified. For the first 571 cases, the anastomosis was performed with a Rocco posterior reconstruction using 3–0 Monocryl followed by a single-layer (SL) running vesicourethral anastomosis using Quill suture. After the 572nd case, we began adding another stitch at the end to reapproximate the anterior detrusor to the horseshoe striated sphincter and dorsal vein running it from the 3–O’clock to the 9 O’clock position with 3–0 V-loc on a CV–23 needle. Early continence, the endpoint, was defined as being free of pads at 2 months or 4 months postoperatively. The probability of early continence at those time points was compared between the DL group (n=52) and the 52 immediate consecutive patients who underwent a SL anastomosis (n=52) (cases 518–571). SPSS was used for statistical analysis.

Results: Patients with a DL anastomosis had a higher likelihood of being continent at 2 months (53.8% vs. 28.8% p<0.02) and 4 months (55.7% vs. 34.6%, p<0.02) compared with the SL group. There were no differences between groups with regards to early or late complications, meatal strictures (1%), early urinary retention (2.9%), mean age (57.5 years), prostate weight (48.5 g), body-mass index (28.2), catheter time (mean 8.4 days), operative time (165 min), estimated blood loss (87.3 cc), length of stay (1.04 days), history of diabetes (18.3%), or obesity (27.9%). Of note, in patients managed with a SL anastomosis with > 1 year follow-up, 89.2% were free–of any pads after a median follow–up of 24.9 months, with 2.2% (10/454) of patients opting for a sling or artificial urinary sphincter procedure.

Conclusion: Performing a double layer vesicourethral anastomosis does not prolong operative time and is associated with a greater probability of being free of pads at two and four months after robotic prostatectomy. Whether long–term continence rates are improved with this technique compared with a SL anastomosis will be studied when longer follow–up becomes available.
Poster #M37
PREDICTORS OF URINARY RETENTION IN PATIENTS RECEIVING INTRADETRUSOR BOTULINUM TOXIN INJECTIONS
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New York University
Presented By: Daniel Hoffman

Introduction and Objectives: Intradetrusor onabotulinumtoxinA (BTX-A) injections are an established third-line therapy for the treatment of overactive bladder. Incomplete bladder emptying requiring clean intermittent catheterization (CIC) is a side effect that limits the acceptability of BTX-A by patients. Studies have evaluated patient factors that may predispose to catheterization, but few have looked at parameters that may confer protection against CIC. Herein we present an initial report of a cohort of men with overactive bladder who have undergone prostatectomy and subsequent BTX-A for overactive bladder (OAB).

Methods: A retrospective chart review of patients receiving 100 units of BTX-A for OAB refractory to antimuscarinics and/or beta 3 agonists from 2010 to 2014 was performed. Specifically, we sought to identify predictors of elevated post-void residual (PVR) leading to CIC in patients not expected to perform CIC post treatment. From that database a subset of men who had undergone prostatectomy for benign or malignant disease (open or robotic radical prostatectomy (RP), or transurethral procedure (TUR) for BPH) were identified. All men received 100 units of onabotulinumtoxinA under local anesthesia by flexible cystoscope. PVR was measured two weeks after the procedure. We recommend CIC for PVR 200 - 349 ml with symptoms or greater than 350mL with or without symptoms. Clinical variables were correlated with PVR/CIC at their subsequent evaluations.

Results: Sixty-six men were identified who were not performing CIC prior to BTX-A injection. Of these, 29 (39.2%) had surgical interventions on their prostate; 12 (18.2%) had open or robotic RP and 17 (25.4 %) had a TUR for BPH. The overall rate of CIC was 15.2%. Three (10.3%) men in the TUR group required CIC vs. 7 (18.9%) who had an intact prostate (Table). No men in the RP group required CIC.

Conclusion: The overall rate of CIC in men receiving BTX-A seems higher than in women. Prior RP, but not TUR, appears to be protective against CIC, probably due to the ability to valsalva void post RP.
Poster #M38
NON-INVASIVE CHARACTERIZATION OF REAL-TIME BLADDER SENSATION IN NORMAL VOLUNTEERS USING ACCELERATED HYDRATION AND A NOVEL SENSATION METER
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Presented By: Adam Klausner

Introduction and Objectives: The purpose of this investigation was to develop a non-invasive, objective, and reproducible method to characterize real-time bladder sensation.

Methods: Volunteers without urinary urgency (defined by ICIq-OAB survey scores) or significant medical history were prospectively enrolled in an accelerated hydration study. During the study, participants were asked to drink 2L Gatorade-G2® and record real-time sensation on a 0-100% scale as well as standardized verbal sensory thresholds using a novel “sensation meter” (Figure 1a). Two complete fill and void cycles were recorded to generate real-time sensation data.

Results: Data from 10 subjects was utilized for this study. Duration of filling was decreased in fill 2 vs. fill 1 (66±10min vs. 94±6min, p<0.05) and voided volume decreased in fill 2 vs. fill 1 (656±80ml vs. 783±99ml, p<0.05). Volume sensory thresholds of First Sensation, First Desire, and Strong Desire in fill 1 were 304±56ml, 553±76ml, and 754±112ml, respectively. Some adjacent thresholds (within each fill) were not statistically different, and some identical thresholds (between fills) were statistically different. Real-time sensation curves were significantly different when evaluated according to fill duration and estimated filling volume but were nearly identical when analyzed according to percent bladder capacity (Figure 1b).

Conclusion: This study establishes a non-invasive means to evaluate real-time bladder sensation using a two-fill accelerated hydration protocol and a sensation meter. Use of percent capacity-sensation curves gives reproducible results despite variable filling durations and volumes. This methodology could be used in the eventual sub-categorization of different forms of Overactive Bladder.
Poster #M39
SENSATION DURING FILLING CYSTOMETRY CORRELATES WITH DETRUSOR WALL TENSION IN PATIENTS WITH OVERACTIVE BLADDER
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Presented By: Andrew Colhoun

Introduction and Objectives: In a compliant bladder, intravesical pressure (pves) increases minimally during filling. In contrast, patient sensation increases dramatically during filling. Detrusor smooth muscle is in-series with pelvic afferent nerves, acting as a tension sensor. Therefore, we hypothesize that detrusor wall tension, rather than pves, better correlates with patient sensation. This study aims to correlate continuous quantitative patient-reported sensation during filling cystometry with pves and estimated detrusor wall tension.

Methods: As part of an IRB-approved extended urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB), defined as ICIq-OAB question 5a ≥ 3, underwent standard UD testing and simultaneously used a real-time sensation meter to record continuous changes in sensation from 0–100%. Patients were instructed on the use of the meter prior to the study. Sensation values were time-linked with volume infused and pves. Bladder wall tension was calculated using recorded pves and infused volume, assuming spherical bladder filling (Figure 1A). Normalized bladder wall tension and pves were sampled for each patient at 10% sensation increments. Regression analysis correlated bladder wall tension and pves to patient sensation.

Results: Twelve patients underwent UD with use of the sensation meter, and three were excluded (transducer malfunction, fill to only 30mL, only 10% sensation reached). Based on regression analysis, bladder wall tension exhibited an improved correlation to patient sensation compared to pves (adjusted R² = 0.95 vs. 0.59, respectively, n=9). Regression slope (β) also demonstrated a better correlation and was significantly different for bladder wall tension compared to pves (β=0.56 vs. 0.15, p<0.0001; ideal β=1) (Figure 1B).

Conclusion: Bladder wall tension demonstrates an improved correlation with patient sensation during filling when compared to pves. Development of techniques to more accurately measure detrusor wall tension such as combining real-time 3D ultrasound with UD may help to identify and treat a subset of patients with tension-mediated OAB. Financial support provided by VCU Presidential Research Quest Fund and NIH R01DK101719


**Introduction and Objectives:** Many aspects of neural regulation of micturition have been extensively investigated but the understanding of audio and visual cues’ impact on overactive bladder (OAB) remains to be elicited. We hypothesized that addition of audiovisual (AV) cues commonly associated with OAB symptoms would increase the finding of involuntary detrusor contractions (DO) on urodynamic evaluation (UDE). Our objective was to estimate the effect of adding an AV intervention during UDE on DO detection compared to routine UDE testing without AV cues.

**Methods:** We conducted a randomized trial including 218 women with OAB undergoing UDE. Women were randomized to standard UDE versus UDE with AV intervention. The AV intervention was a one-minute video played on a continuous loop. The video showed common OAB triggers (e.g. restroom signs, tap water running, key in a door lock). A continuous running waterfall provided auditory stimulation. The primary outcome was the proportion of patients who had DO on UDE. Secondary outcomes included number, amplitude and duration of DO and urinary leakage associated with DO. UDE interpretation was performed by masked clinicians. Demographic and clinical data were collected. Based on an estimated baseline DO detection rate of approximately 30%, a sample size of 109 per group would have 80% power to detect a 20% difference at alpha = 0.05. Funding was not provided for this study.

**Results:** 109 women were randomized to standard UDE and 109 to the AV intervention. There was no difference between groups in the proportion of patients with DO on UDE; (34% versus 33%, P = 1.0 for control vs. intervention, respectively). There was no difference in leakage with DO on UDE (22% versus 22.9%), mean duration of detrusor contractions (24.8s versus 24.3s), or mean maximum detrusor pressure during involuntary contractions (21.7 versus 16.8 cmH2O). Clinical symptom severity of OAB symptoms was not associated with the detection of DO or other UDE parameters.

**Conclusion:** Addition of an AV intervention during UDE did not increase the finding of uninhibited detrusor contractions. The relationship between OAB triggers, urgency urinary incontinence, and urodynamic findings remains unclear.
CHARACTERIZING THE URODYNAMIC FINDINGS OF ADULT CEREBRAL PALSY PATIENTS
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Presented By: Mya Levy

Introduction and Objectives: Cerebral palsy (CP) is a heterogeneous congenital syndrome unified by abnormalities in movement and posture. Patients may also suffer from cognitive impairment and voiding dysfunction. While there are some reports within the pediatric urology literature, there is minimal knowledge and consensus regarding the unique characteristics of adult patients’ voiding dysfunction as defined by urodynamics (UDS) parameters. We sought to concisely describe the UDS findings of an adult population of patients with neurogenic bladder and a concurrent diagnosis of cerebral palsy.

Methods: Patients were recruited from the Gillette Lifetime Specialty Healthcare Transitional Urology Clinic. UDS were retrospectively analyzed from patient’s first assessment upon entry into the transitional clinic. We included patients seen in the clinic from 2011-2014, >/=18 years of age, and who have a diagnosis of CP.

Results: Forty-nine patients underwent UDS testing from 2011-2014. They were on average 30 years old, 55.1% men 44.9% women. UDS was initiated for the following reasons - incontinence (57%), urinary retention (25%), irritative voiding symptoms (28%), obstructive voiding symptoms (6%), hydronephrosis (18%), recurrent urinary tract infections (6%). Detrusor sphincter dyssynergia (DSD) was seen in 12% patients, detrusor instability (DI) was seen in 39% patients. DLPP was recorded in 18 patients and was on average 58.88. Compliance ratios (CR) for the entire population was 43 but varied widely according to symptoms/sign which initiated UDS. CR were lowest for patients with hydronephrosis and obstructive voiding symptoms (26.4, 18.4).

Conclusion: Previous studies regarding UDS results in pediatric patients with CP report high rates of DSD, and incontinence, and lower but prevalent rates of irritative voiding symptoms, retention, and obstructive voiding. We found relatively low rates of DSD, but similar to the pediatric population high rates of incontinence. Overall, UDS in the adult CP population are varied, but include a population of patients with pathology that includes DLPPs >40, DI, and poor compliance. Further characterization of this population is needed in order to anticipate their unique clinical needs.
Poster #NM53
DOES UPPER MEDIAL PLACEMENT OF A SACRAL LEAD AFFECT NEUROMODULATION OUTCOMES? A RADILOGIC STUDY
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Presented By: Natalie Gaines

Introduction and Objectives: Significant emphasis has been placed on ideal radiologic placement of the sacral tined lead in the upper medial aspect of the S3 foramen. However, no study has examined radiologic parameters to determine how placement impacts treatment response. In this study we examined the location of sacral leads compared to outcomes.

Methods: Radiologic images from patients enrolled in our prospective neuromodulation database were analyzed. Patients with incomplete data or x-rays where the foramen were not clearly visible were excluded. A standardized approach was used to determine the lead location within the S3 foramen. Lead location was compared to clinical outcomes including voltage data, Interstitial Cystitis Symptom/Problem Index (ICSIPI), Overactive Bladder Symptom Severity and Health Related Quality of Life questionnaires (OAB-q SS, OABq-HRQOL) 6 months post-implant. Descriptive statistics, Pearson’s Chi-square, Fischer’s Exact, Wilcoxon rank tests, and repeated measures were performed.

Results: Of 86 patients with complete radiologic data, 38 leads were placed in the upper medial aspect of the foramen and 48 were not. All leads were located in the medial half of the foramen. A lead was considered to be in the but those in the upper medial aspect were within the medial 1/10th of the foramen when it was located above the hillock and within the medial-most 10% of the foramen. No significant differences were noted in baseline demographics or rate of conversion to stage II implantation. In both cohorts, > 75% of the leads implanted had motor response on four electrodes. Median voltage did not significantly differ and was 2V for leads 0, 1, and 2 and 4V for lead 3 in both cohorts. ICSI-PI, OABq-SS and OABq-HRQOL scores were significantly worse in the upper medial group at baseline, but all groups improved over 6 months (p<0.0001, p<0.002 and p=0.0018, respectively). In both cohorts, approximately 55% of patients were moderately/markedly improved on a global response assessment at 6 months and the majority would recommend the treatment to a friend.

Conclusion: This is the first study to analyze the impact of lead position in the foramen on clinical outcomes. Placement of a sacral lead in the upper medial aspect of the foramen does not appear to affect overall neuromodulation outcomes.

Funded: Philanthropy; Ministrelli Program for Urology Research and Education (MPURE)
Poster #NM54
SACRAL NERVE STIMULATION IN MALES: HOW DOES IT COMPARE TO FEMALES?
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Presented By: Bradley Gill

Introduction and Objectives: Most sacral nerve stimulation (SNS) literature details use in predominantly female cohorts. This study describes characteristics and utilization of SNS in male (M) relative to female (F) patients.

Methods: A database of all SNS procedures from 2011-2015 was created with institutional review board approval. Demographics, comorbidities, prior urologic treatment, SNS indication, and SNS utilization were collected. Descriptive statistics characterizing the M group were compiled and comparative statistics (Student t, Pearson chi squared, Fisher exact tests) identified differences relative to the F group. No funding was used.

Results: Sixty M and 360 F received SNS for significantly (p=0.002) different primary indications (Table). Demographics were similar, with M 56.9(SD=18.4) years of age at a 28.8(5.4)kg/m² body mass index upon intervention. Diabetes (16.7%), smoking (15.0%), and cardiovascular disease (25.0%) rates in M were similar to F, except for significantly less F (10.1%, p=0.001) cardiovascular disease. Secondary SNS indications were comparable besides nearly two times more (16.7% vs. 8.0%, p=0.033) M non-obstructive urinary retention. Aside from irritable bowel syndrome (7.5% vs. 0.0%, p=0.021) only in F, concomitant gastrointestinal conditions did not differ. Prior M urologic treatments include nine (15.7%) transurethral prostate resections and five (8.3%) photovaporizations. Significantly more M used alpha-blockers (26.7% v 3.3% p<0.001) but no gender differences in anticholinergic, beta-agonist, botox, tibial nerve stimulation, pelvic floor physiotherapy, or catheterization existed. Proportions of peripheral nerve evaluation (PNE) or staged implantation were no different, nor were M (100%) and F (79.1%) PNE success rates. However, F had significantly (91.6% v 70.4% p<0.001) more stage 1 success. Overall, 41(68.3%) M pursued stage 2 implantation, with five combined stage 1-2 procedures. Of local implants, explant rates in M (15.0%) and F (18.3%) did not differ, but F revisions were significantly (31.4% v 23.3% p=0.008) more common.

Conclusion: Indications for SNS in males differ from females, as do stage 1 success rates. Further SNS optimization via refined selection criteria is warranted.
Poster #NM55
EFFICACY OF PERCUTANEOUS TIBIAL NERVE STIMULATION FOR REFRACTORY IDIOPATHIC OVERACTIVE BLADDER AT A MILITARY INSTITUTION
Doug Cho, MD; Joseph Lukan, BSN; Pansy Uberoi, MD; Timothy Phillips, MD; Forrest Jellison, MD
Presented By: Doug Cho

Introduction and Objectives: Percutaneous tibial nerve stimulation (PTNS) is a treatment for refractory idiopathic overactive bladder (RIOAB). The purpose of this study is to describe the early experience and efficacy of PTNS for RIOAB.

Methods: We reviewed all patients who were referred for PTNS treatments at a military institution from July 2011 to April 2015. A total of 55 patients were identified. Of these, 21 patients were referred for RIOAB and completed 12 weeks of treatment. Outcomes were followed with bladder diary and validated questionnaires (Incontinence Impact Questionnaire-7, Urogenital Distress Inventory-6) at baseline and 12 weeks. Statistical analysis consisted of Wilcoxon's rank sum and Fisher's exact test. Logistic regression was performed for associations of clinical response to treatment.

Results: Baseline characteristics for PTNS treatment were identified. The majority of subjects were female at 71%. The median age was 67 and median BMI was 29. 95% of patients had been treated with at least one antimuscarinic, 14% with mirabegron, and 14% with botox. A total of nine subjects underwent UDS prior to therapy, of which 1/3 were diagnosed with detrusor overactivity. Subjects experienced significant decrease in urge urinary incontinence (6.3 to 3.9 episodes, p=0.01), nocturia (2.8 to 1.8 episodes, p=0.02), and frequency (15.1 to 11.4 episodes, p=0.02) after 12 treatments. Of those with urge incontinence, 27% of patients became dry after therapy. Subjects also had decreased UDI-6 (37.9 to 21.2) and IIQ-7 (51.0 to 20.2) scores (p<0.05). BMI > 30 was associated with improved clinical response to PTNS based on univariate analysis (p=0.02). No complications were reported.

Conclusion: PTNS is a safe treatment option for RIOAB. Patients experienced significant subjective and objective improvement in OAB symptoms. There was also an association of improved response with BMI > 30.
Introduction and Objectives: Magnetic resonance imaging (MRI), except for head MRI, is contraindicated with an implanted neuromodulation device. Explant, and potential device re-implant, is costly in terms of dollars as well as patient burden. We examined our large series of implanted patients to evaluate the incidence and factors related to device explant for MRI.

Methods: Our prospective neuromodulation database was reviewed for patient reported demographics, and primary urologic diagnosis, explant for MRI, and re-implant data collected from medical records. Descriptive statistics were performed.

Results: Of 626 patients implanted between 2004 and 2015, 20 (3.2%) were explanted for MRI (85% female; mean age 52.1 years; 90% white). Primary urological diagnoses in explanted patients were urinary urgency/frequency with urge incontinence (n=8), interstitial cystitis/bladder pain syndrome (n=7), urgency/frequency (n=2), idiopathic urinary retention (n=2) and chronic pelvic pain (n=1). Six patients had at least one secondary neurological diagnosis including multiple sclerosis (2), incomplete spinal cord injury (1), stroke (2), and others (6) such as seizures, postural orthostatic tachycardia syndrome (POTS), peripheral neuropathy, pudendal neuropathy, and cauda equina syndrome. Proportions with neurological diagnoses were similar for patients that had an MRI explant when compared to other patients not explanted for MRI (30% vs. 26.1%; p=0.69). Mean time to explant for MRI was 26.5 (range 2.7 to 66.9) months. Twelve patients had complete documentation for type of MRI: head (3), urethra (1) shoulder (1), and cervical, thoracic, or lumbar spine (7). In the 19 patients that had follow up records available for review, three were re-implanted at two weeks to four months after MRI, three declined re-implant (symptoms had resolved), and six that reported minimal symptom improvement after initial implant were not restaged. Reason for lack of re-implant was not documented in seven patients.

Conclusion: Although patients with preexisting neurological diagnosis might be at higher risk for future MRI, the presence of neurological disease was not higher in those explanted for MRI. Overall, the number of patients explanted for MRI remained low. Predicting future need for MRI is difficult, however the possibility should be considered prior to device implant and patients counseled accordingly.

Funded: Ministrelli Program for Urology Research and Education (MPURE–Philanthropy)
Poster #NM57

DOES THE NUMBER AND TYPE OF PREVIOUS PELVIC PROCEDURES AFFECT OUTCOME OF SACRAL NEUROMODULATION IN THE TREATMENT OF IN WOMEN WITH IDIOPATHIC DETRUSOR OVERACTIVITY?

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Presented By: Eskinder Solomon

Introduction and Objectives: To assess if the number and type of previous pelvic procedures affect outcome of sacral neuromodulation (SNM) in the treatment of in women with idiopathic detrusor overactivity (IDO).

Methods: We reviewed the clinical data of 46 consecutive female patients offered SNM to treat IDO from January to December, 2014. We documented the number and type of pelvic procedures the patients had undergone. We classified the pelvic procedures into four groups: 1) anti-incontinence 2) gynaecological 3) bladder augmentation and 4) anti-incontinence and gynaecological. A successful SNM test was considered if frequency, as assessed by a frequency-volume chart, was reduced by at least 50%. Statistical analysis was performed using Fisher's exact test in SPSS.

Results: Forty-six female patients with a mean age (+ standard deviation) of 51.5 (+ 16.4) years were reviewed. 65.2% (n=30) of patients had a successful outcome following the SNM test. These patients went on to a permanent SNM implant. As can be seen from Figure 1 below, there was no statistically significant difference in the distribution of the number (p=0.91) or type (p=0.93) of previous pelvic procedures between the patients in the fail and success outcome groups.

Conclusion: SNM has a good outcome for IDO in women irrespective of the number or type of previous pelvic procedures. Figure 1: The number of patients in the success and fail outcome groups and corresponding breakdown of the number and type of previous pelvic procedures.
Introduction and Objectives: Physicians often develop a treatment algorithm, a pre-determined process to assist in the assessment, diagnosis and treatment of a condition. These algorithms, particularly for the treatment of OAB, vary based upon physician training, practice setting, and experience. Guidelines for OAB treatment recommend behavioral therapies and biofeedback (1st line treatment), pharmacological agents (2nd line), and surgical intervention (3rd line) such as Sacral Neuromodulation (SNM). However, there is no single agreed-upon pathway that guides treatment based upon specific genitourinary history and prior therapeutic interventions regarding the likelihood of successful 3rd line intervention. The objective of this analysis is to describe the genitourinary medical history and the non-pharmacological and pharmacological treatments of subjects enrolled in the InSite trial prior to receiving SNM. Subjects with bothersome symptoms of OAB including UI or UF, who had failed at least one anticholinergic medication but had at least one medication not yet tried were included.

Methods: The analysis included subjects who underwent test stimulation and then received a full SNM system implant. Demographics, previous medications, non-pharmacological treatment and genitourinary history were collected at baseline.

Results: Of the 340 subjects who underwent test stimulation, 272 received a SNM system implant. Demographics included 91% females and a mean age of 57.0. Baseline symptom severity was 3.1±2.7 leaks/day and 12.6±4.5 voids/day. The most common non-pharmacological treatments tried were hysterectomy (for treatment of OAB and other conditions), pelvic floor retraining, bladder retraining, timed voiding, and biofeedback. Subjects tried a median of two OAB medications prior to lead implant. 85% of subjects reported a history of genitourinary surgery and pregnancy (77%). Results were similar for test stimulation subjects that did not receive an implant.

Conclusion: Treatment algorithms are determined by individual physicians and may vary from one patient to another. In this large post-market study, subjects tried a variety of non-pharmacologic and pharmacological options to treat OAB prior to receiving SNM.
Poster #NM59
REMOVAL OF THE INTERSTIM® SACRAL NEUROMODULATION (SNM) PERMANENT TINED LEAD FROM THE S3 FORAMEN: A STANDARDIZED SURGICAL TECHNIQUE
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Presented By: Matthew Sterling

Introduction and Objectives: Sacral neuromodulation (SNM) offers an effective treatment option for those who fail standard medical therapy for urgency urinary incontinence, overactive bladder, chronic urinary retention, and fecal incontinence; however, adverse events (AE) do occur and explantation or revision of the device is occasionally necessary, even years after initial placement. Removing the permanent lead can put strain on the lead, resulting in a possible break and retained fragments. Here we describe a novel and safe surgical technique for removing the Interstim® device and permanent lead.

Methods: The previous lead site is identified and a one-centimeter (cm) vertical incision is made over the previous lead insertion site. Blunt dissection is used to isolate the lead, which is externalized using a curved hemostat. The fibrous encapsulation formed around the lead is dissected off of the lead down to the level of the sacrum to expose the tines and ensure the lead is free from all adhesions. The lead is slowly removed by wrapping it around a curved hemostat and turning the hemostat under tension until the lead is removed in its entirety (Fig 1). If the lead breaks on removal, the vertical incision is extended to approximately three to four cm and dissection is carried down to the sacral body to remove all fragments from the S3 foramen.

Results: A total of 29 patients had their permanent tined lead removed between 2009 and 2015 after being in place a median of 2.00 years (IQR 1.32-3.32 years). Two leads broke (6.9%) during removal over the six years, although it should be noted that after our first experience with a lead breaking, we standardized our technique and only encountered one break from that point forward out of a possible 28 patients.

Conclusion: Although uncommon, tined leads can break on removal and retained fragments can pose potentially significant health consequences such as fragment migration with resultant pain, MRI complications, viscus perforation, or even death. Our described technique standardizes the surgical procedure for removal and has shown to be safe and effective in our series.
Poster #NM60
TIBIAL NEUROMODULATION: NOVEL CHRONIC IMPLANTABLE DEVICE ACHIEVES URINARY CONTINENCE IN INITIAL CASES
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¹Balgrist University Clinic, Zurich, Switzerland; ²University Clinic, Antwerp; ³SALK/PMU
Presented By: Karl-Dietrich Sievert

Introduction and Objectives: Percutaneous tibial nerve stimulation (PTNS) has been successfully used to treat symptoms of overactive bladder (OAB). It relies on episodic stimulation of the tibial nerve once a week for 30 minutes, commonly performed in an outpatient setting. A novel minimally-invasive chronic implant allows stimulation of the tibial nerve for several hours per day, which might revolutionize PTNS. We report on chronic tibial neuromodulation using this new chronic implantable device.

Methods: After an initial three-month study of four patients suffering from OAB conducted in Mexico in 2013, a reduction of the urgency index was documented. In August, 2014, two males were implanted with neurogenic lower urinary tract dysfunction (nLUTD); an 82-year-old patient with Parkinson’s disease for six years and a 69-year-old patient with multiple sclerosis for 16 years. Both patients suffered from refractory urgency incontinence (UI) and nocturia; detrusor overactivity (DO) and detrusor sphincter dyssynergia were demonstrated during video-urodynamics. The implantation was accomplished as live surgical procedure in local anaesthesia during the 3rd International Neuro-Urology Meeting in Zürich, Switzerland.

Results: The implantation of the novel electrode was well-tolerated by both patients and performed as outpatient surgery. Within 48 hours the patients reported significant improvement of nLUTD. Two months after surgery, both patients are completely dry; urinary urgency and nocturia disappeared according to their bladder diary. Due to this reported implantation success, stimulation was continued only during sleep (night time). The urodynamic follow-up at two months follow-up documented a significant increase of maximum cystometric capacity; no DO was detected. Thus far, no implant-related adverse events were reported.

Conclusion: Tibial neuromodulation using a novel chronic implantable device introduces a promising treatment option with minimal-invasive technology that is urgently needed for patients suffering from refractory OAB or even from multiple problems. This new technology offers the opportunity for the patient to perform chronic tibial neuromodulation for several hours over 24 hours, even while sleeping. Further follow-up data will be reported. This new device might revolutionize neuromodulation procedures.
**Introduction and Objectives:** A retrospective chart review of 173 patients who underwent sacral neural modulation, staged approach, using intraoperative neuro diagnostics (nerve conduction with CMAP identification) as well as sensory awareness and traditional motor response assessment. Successful conversion to permanent implant was found in 160/173 (92.5%).

**Methods:** Subgroup analysis of 109 patients with IC/BPS and at least 1 year follow-up demonstrates a conversion to permanent implant after a successful stage I in 103/109 (94.5%) of patients. Explant due to loss of efficacy or other non-infectious etiology was found in 14/109 (9.45%). Explant due to infection was 5.6% in the total cohort. Urethral pressures as well as number of active leads have been reported to be related to success outcomes to sacral neuromodulation. Average number of active leads was 3.68, and average maximal urethral pressure of 127 cm of h2o was identified in the successful cohort vs 3.42 and 93.1 in the patients that failed their test phase.

**Results:** Multiple studies demonstrate a conversion rate to permanent implant in 45 to 60% of PNEs and 80% of staged implants as reported by a multicenter prospective study involving thought leaders in the field of sacral neuromodulation. Typical success rate for SNM in this population of patients with urgency frequency syndromes is 52% to 72%. These same studies report a much higher explant rate, often due to loss of efficacy. The addition of neuro diagnostics as well as an aggressive peri-operative approach involving multimodal therapies directed towards IC/BPS appears to have a significant advantage in the successful conversion to permanent implant in a patient group that typically have a lower success rate. Patient selection is certainly involved in this cohort of patients and the presence of elevated urethral pressures and intra-operative neuro-diagnostics seems to be associated with a positive outcome with SNM.

**Conclusion:** Further analysis of this cohort of patients involved in this database will be the subject of a future report.

2. Ghazwani NeurourolUrodyn Sept 2011  
3. Gajewski BJU April 2011
POSTER #NM62
LONG-TERM FOLLOW UP RESULTS OF TRANSOBTURATOR MALE SLINGS FOR POST-PROSTATECTOMY INCONTINENCE
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Presented By: Katherine Brewer

Introduction and Objectives: The transobturator male sling (TOMS) for post-prostatectomy incontinence (PPI) has shown to be effective in short-term studies however there is a lack of evidence for long-term follow up. The objective of this study was to evaluate the long-term success of the transobturator male sling.

Methods: A retrospective review was performed of 60 post-prostatectomy patients who underwent TOMS insertion at a single-institution from 2007-2012. 47 patients had short-term follow up >1 year, while 25 patients had long-term follow-up >2.5 years. Failure was defined as patients requiring the use of one or more pad per day (PPD). Success was defined as patients who were pad-free or wore one “safety-liner” per day. Statistical analysis was performed using the chi-squared test and univariable regression models.

Results: Long-term success rate of TOMS was 72.0% with a mean follow up time period of 45.6 months (range 40.0 to 71.9 months). At 12 months, success rate was 78.7%. Pre-operative characteristics between the success and failure groups were similar. There was no worsening of severity of incontinence over time. On univariable analysis, both 24-hour pre-operative pad weights and number of pre-operative pads per day were statistically predictive of success (p=0.003 and p=0.01). Within the entire cohort, seven out of eight patients with failures went on to receive an artificial urinary sphincter.

Conclusion: The transobturator male sling is effective and safe in long-term follow up. Results were similar at follow up time of 1 year and >2.5 years. Pre-operative pad weights and number of pre-operative PPD may influence the success of the TOMS in post-prostatectomy incontinence. Given such efficacious long-term results, the male sling may be more appealing and advantageous to patients when compared to the artificial urinary sphincter.
Introduction and Objectives: Despite introduction of the artificial urinary sphincter (AUS) over 30 years ago and widespread use, there is a paucity of data regarding long-term outcomes available. Thus, we sought to evaluate long-term device outcomes following primary AUS implantation.

Methods: We identified 1802 male patients with stress urinary incontinence that underwent AUS placement from 1983 to 2011. Of these, 1082 (60%) were involving primary implantations and comprise the study cohort. Multiple clinical and surgical variables were evaluated for potential association with treatment failure, defined as any secondary surgery. Patient follow-up was obtained through office examination, operative report, and written or telephone correspondence.

Results: Patients undergoing AUS implantation had a median age of 71 years (interquartile range 66-76) and median follow-up of 4.1 years (interquartile range 0.8-7.7). Overall, 338 of 1082 patients (31.2%) underwent secondary surgery, including 89 for device infection and/or erosion, 131 for device malfunction, 89 for urethral atrophy, and 29 for pump malposition or tubing complications. No patient-related risk factors were independently associated with an increased risk of secondary surgery (for any cause) on multivariable analysis. Secondary surgery-free survival was 90% at 1 year, 74% at 5 years, 57% at 10 years, and 41% at 15 years.

Conclusion: Primary AUS implantation is associated with excellent long-term outcomes. Recognition of long-term success is important for preoperative patient counseling.
TEMPORAL PATTERN OF ARTIFICIAL URINARY SPHINCTER (AUS) CUFF EROSIONS INDICATING DIFFERING ETIOLOGIES OF AUS CUFF EROSIONS
Deepak Agarwal, MD; Brian Linder, MD; Daniel Elliott, MD
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Presented By: Deepak Agarwal

Introduction and Objectives: The Artificial Urinary Sphincter (AUS) is the mainstay of surgical treatment for severe male stress urinary incontinence. Although urethral erosions are a known complication, their temporal distribution has not been well characterized. Our hypothesis is that there is a bimodal distribution of erosions, with peaks early after implantation from perioperative/surgical technique causes, and a later peak from urethral atrophy. Thus, we sought to evaluate the timing and etiologies of urethral erosions in primary AUS implantations.

Methods: We identified 1802 male patients that underwent AUS procedure at Mayo Clinic (Rochester) from 1983-2011. Of these procedures, we identified 1082 primary AUS placement. Of these, 63 had a urethral erosion of their device requiring explanation and were included in our analysis. All cases of urethral erosion were confirmed at the time of explantation either via cystoscopy or direct visualization.

Results: Overall, there were 63 cases of urethral erosions of primary AUS devices placed at our institution from 1983-2011. Median age of these patients at time of AUS implantation was 74 years (IQR 68,77). Median time to explantation was 21 months (IQR 5,59 months). When evaluating the temporal trend of AUS erosions, a peak was seen in the first year, with a gradual tapering of cases thereafter. Notably, urethral erosions continued to present over 10 years after AUS placement (Figure 1). Possible etiologies could be traumatic catheterizations and/or progression of urethral atrophy.

Conclusion: Urethral erosions tend to occur early (with 1-2 years) after implantation, with gradual tapering over time thus indicating possible surgical technique etiology. However, continued vigilance is needed after AUS placement (both from the patient and providers) in an effort to decrease late erosions. This data can be used for counseling and to help guide follow-up care of patients with AUS.
Poster #NM65

MALE SLING VERSUS ARTIFICIAL URINARY SPHINCTER AS PRIMARY MANAGEMENT OF POST-PROSTATECTOMY INCONTINENCE: A COST-EFFECTIVENESS ANALYSIS

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Presented By: Joshua Cohn

Introduction and Objectives: The artificial urinary sphincter (AUS) is considered gold standard management of post-prostatectomy incontinence (PPI). Male sling (MS) is an alternative to AUS in non-radiated patients with mild to moderate incontinence but may be less likely to achieve satisfactory results. As a result, a subset of patients undergoing primary MS will require AUS, presenting a dilemma in cost-based decision making. Our objective was to determine the cost-effectiveness of MS versus AUS as primary therapy for PPI in achieving use of ≤1 pad per day (ppd).

Methods: We developed a cost-effectiveness decision analysis model to evaluate the cost of MS versus AUS as initial therapy in achieving continence of 0-1 ppd. Probabilities of success were estimated at three years based on limitations of long-term data on MS outcomes and were based upon an index non-radiated patient with PPI of ≤4 ppd. It was assumed that men failing MS could undergo AUS without intervening surgery. AUS failure necessitated explant with replacement in the same or subsequent operative session. It was assumed men would undergo repeat operation until success was achieved, with a limit of two AUS placements. Costs were obtained from 2015 CMS fee schedules and cost-effectiveness modeled from the payer perspective. Cost-effectiveness was determined if the incremental cost-effectiveness ratio (ICER) to achieve one additional success was less than a willingness-to-pay threshold of $50,000.

Results: In the base model, primary MS dominated AUS and was associated with a decreased incremental cost of $5475 relative to primary AUS. On one-way sensitivity analysis when the probability of AUS success was varied to 100%, the strategy of primary AUS was no longer dominated, however, the cost-effectiveness of primary MS was maintained (ICER $430,578/additional success). The strategy of primary AUS reached cost-effectiveness when anticipated success rate of MS was varied to 40% or below.

Conclusion: Despite increased potential need for additional surgery following MS to achieve success, a strategy of primary MS rather than initial AUS is cost-effective at three years in patients with ≤4 ppd PPI. Cost-effectiveness of initial MS may be maintained even as the likelihood of need for subsequent AUS approaches 50% or greater. Therefore, primary MS placement is a conscientious option for mild to moderate PPI, provided patient counseling is appropriate.
RECOVERY OF URINARY FUNCTION AFTER ROBOTIC-ASSISTED LAPAROSCOPIC PROSTATECTOMY VERSUS RADICAL PERINEAL PROSTATECTOMY FOR EARLY STAGE PROSTATE CANCER

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Presented By: Priyanka Gupta

Introduction and Objectives: Robotic-assisted laparoscopic prostatectomy (RALP) has largely replaced open radical prostatectomy in many markets. Radical perineal prostatectomy (RPP) is an alternative, less invasive open approach that has been widely ignored. There is little data on the recovery of urinary function between RALP and RPP.

Methods: Retrospective review of a prospective radical prostatectomy database at Beaumont Health System. Urinary modules from the Expanded Prostate Cancer Index Composite-Urinary Function (EPIC-UF) questionnaire were used to determine preoperative baseline urinary symptom summary score, and subscale scores of urinary incontinence, bother, irritative/obstructive, and function and at six, 12, 18, and 24 months after surgery.

Results: 508 of 733 men had complete EPIC-UF data, 419 underwent RALP and 89 RPP. Baseline clinical and prostate cancer data were similar between groups. At baseline, mean EPIC scores were similar between RALP and RPP groups (88.9 vs. 89.8) but at six months, overall urinary symptom score recovery was greater for RALP than RPP (82.17 vs. 77.7; p=0.028), but there was no significant difference at 12, 18, and 24 months. Post RALP urinary incontinence and function were also significantly improved but only at 6 months (p=0.021, p=0.006). Both RALP and RPP patients showed significant improvement in urinary incontinence and function over 12 to 24 months. There was no significant difference between RALP and RPP at any time point for urinary bother or irritative/obstructive symptoms.

Conclusion: RALP had more rapid recovery of EPIC-UF data at 6 months compared to RPP. However, at 12 to 24 months postoperatively RALP and RPP had similar recovery of urinary function in all urinary domains. Further study is needed to investigate long-term urinary outcomes in patients that undergo RALP and RPP.
Poster #NM67
A CRITICAL APPRAISAL OF THE HISTORY OF MALE STRESS URINARY INCONTINENCE TREATMENT: PAST, CURRENT AND FUTURE
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Presented By: Kirin Syed

Introduction and Objectives: Iatrogenic male stress urinary incontinence (MSUI) can have a significant impact on the quality of life. It is most often associated with urological procedures such as radical prostatectomy (RP), transurethral resection of the prostate (TURP), and radiation therapy. In the last decade, our understanding of this potentially devastating complication has increased and several surgical treatment options have been described. We present a brief review of these treatments and introduce a new therapeutic option in the evolution of MSUI management.

Methods: Historical data was collected using MEDLINE to search the literature from 1966 to March 2015. We then manually searched bibliographies to identify studies that our initial search may have missed.

Results: External compressive devices were the first reported treatment option for MSUI described in 1750. These evolved to external compressive devices such as Berry’s fixed acrylic prosthesis (1961), Kaufman I (1970), Kaufman II (1972), Stamey’s male sling (1998), bone anchor sling (2001), Advance transobturator sling (2007) and most recently the quadratic Virtue sling (2012). Similarly, circumferential dynamic compression evolved from the Foley (1947), Rosen artificial urinary prosthesis (1971), Scott’s artificial urinary sphincter- AUS (1973), and the one piece ZSI 375 device (2013). Since the latest modification of the AUS in 1981, there has been minimal breakthrough in the development of novel circumferential dynamic compressive devices to treat MSUI. We present the development of a non-hydraulic, fluid-free, telemetric device based on blue tooth technology which might serve as a prototype for future dynamic compressive devices to treat MSUI.

Conclusion: The successful development of a fluid-free, remotely controlled AUS that allows for post-implant adjustable settings and remote tele-monitoring capabilities is possible and is the first of its kind. This harmonious blend of clinical medicine and cutting-edge technology may represent the future evolutionary course of MSUI treatment.
Poster #NM68
DOES INTRA-OPERATIVE RETROGRADE LEAK POINT PRESSURE PREDICT SUCCESS OF ARGUS MALE PERINEAL SLING
Yu Qing Huang, MDCM Candidate; Samer Shamout, Master in Urology; Lysanne Campeau, MDCM, PhD, FRCSC
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Presented By: Yu Qing Huang

Introduction and Objectives: The Argus male perineal sling is an attractive surgical alternative to the artificial urinary sphincter (AUS) to treat post radical prostatectomy stress urinary incontinence. It is adjustable, less invasive and does not require manipulation before voiding like the AUS. The goal of our study was to determine if intra-operative retrograde leak point pressure (RLPP) to achieve continence could predict post-operative success.

Methods: This is a retrospective review of 19 consecutive patients who underwent implantation of Argus male perineal sling between the years 2013 and 2015 in a tertiary care center. The procedure was performed by two urologists. Demographic information, pre-operative parameters such as urodynamic studies, 24-hour pad test and cystoscopic findings and satisfaction questionnaires (OABSS, ICIQ and IIQ-7 scores), intra-operative post-tensioning RLPP and post-operative parameters such as satisfaction questionnaires and complications, were extracted from patients' medical records.

Results: The mean pre-operative valsalva leak point pressure (VLPP) was 84.06 (±67.45) cm of H2O. The mean intra-operative RLPP was 37.93 (±3.45) cm of H2O. Regression analysis revealed a statistically significant inverse correlation between pre-operative VLPP and intra-operative post-tensioning RLPP (p= 0.0411, r=-0.5954). The pre-operative 24-hour pad test positively correlated to post-tensioning RLPP, but the correlation is not statistically significant (p= 0.2168, r=0.3522). Only 10% of patients had urine leakage after surgery. The pre-operative 24-hour pad test and the post-tensioning RLPP both positively correlated with post-operative questionnaires, but were not statistically significant.

Conclusion: An intra-operative RLPP of 37.93 cm of H2O achieved positive outcomes for Argus male sling. An increased severity of the stress urinary incontinence based on a lower pre-operative VLPP required a higher post-tensioning RLPP to achieve continence. Lastly, pre-operative 24-hour pad test and intra-operative post-tensioning RLPP failed to significantly predict the success rate of Argus male sling based on questionnaires.
**Poster #NM69**

**EFFECTS OF SMOKING STATUS ON DEVICE SURVIVAL AMONG INDIVIDUALS UNDERGOING ARTIFICIAL URINARY SPHINCTER PLACEMENT**

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Presented By: Christina Godwin

**Introduction and Objectives:** It is well-established that smoking is associated with increased risk of wound infection postoperatively. Therefore, it is hypothesized that current smokers or patients with a smoking history may have worse outcomes following artificial sphincter placement. For male incontinence, the literature surrounding artificial urinary sphincter (AUS) survival in patients with a history of smoking is non-existent. Therefore, our aim was to assess AUS device survival outcomes among individuals with current or prior smoking history as compared to nonsmokers.

**Methods:** An institutional review board approved database of all AUS patients from 1998−2014 was utilized to assess AUS device survival in patients with a history of or current smoking as compared to never smokers. Kaplan-Meier analysis was performed to evaluate differences in survival, including overall device and erosion/infection-free survival. Hazard regression analysis was utilized to determine the association between smoking and device outcomes.

**Results:** From 1998−2014, 1270 patients underwent an AUS procedure at our institution. Of those, 728 had smoking status available for review with 401 having a history of smoking and 41 being active smokers at the time of implant. When compared with nonsmoking patients, past smokers had a higher rate of hypertension (p=0.019) and transient ischemic attack (TIA) (p=0.017) preoperatively. On univariate analysis, patient age, history of TIA, diabetes, and coronary artery disease were significantly associated with infection/erosion rate, but smoking status was not (p= 0.93 for current smokers and p=0.76 for past smokers). Likewise, when comparing current smokers to never smokers, there was no significant difference in 1 and 5-year overall device survival (p= 0.46 for current smokers and p= 0.58 for past smokers).

**Conclusion:** Our data does not show an increased risk of infection or erosion or decreased device survival in current smokers or patients with a history of smoking. Despite this, given the established risk of wound infection and respiratory complications from anesthesia secondary to smoking, we still recommend counseling patients to quit prior to undergoing AUS placement.
Poster #NM70
PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: RESULTS FROM A NATIONALLY VALIDATED MULTI CENTER PROSPECTIVE COHORT
Allen Simms¹; Daniel Davenport, PhD¹; Sudhir Isharwal, MD²; Sara Johnson¹; Stephen Strup, MD¹; Shubham Gupta, MD¹
¹University of Kentucky, Lexington KY; ²University of Nebraska, Omaha Nebraska
Presented By: Allen Simms

Introduction and Objectives: To evaluate the perioperative complications after the treatment of male urinary incontinence using a prospectively maintained, risk adjusted and nationally validated outcomes-based program.

Methods: This is an analysis of data prospectively obtained from academic and community medical centers through the American College of Surgeons National Surgery Quality Improvement Program (ACS–NSQIP). Patients who underwent male urethral sling (CPT 53440) or artificial urinary sphincter (AUS– CPT 53445) placement within the years 2011 – 2013 comprised the study population. The primary outcome was a composite 30-day major morbidity measure that included unplanned readmission related to the procedure, unplanned return to the operating room related to the procedure, infection, treated deep venous thrombosis or pulmonary embolism, pneumonia, or acute renal failure.

Results: 789 male patients underwent anti-incontinence surgery during the study period: 370 slings, and 419 AUS. There were no perioperative deaths, no patients required transfusion, and no cerebrovascular or cardiovascular complications occurred. The most common morbidities were related unplanned readmissions and related unplanned return to the operating room (see Table). Major morbidity was higher in AUS group than sling group (5.5% vs. 2.4%, p=.031), including higher related unplanned readmissions (3.8% vs. 1.4%, p=.044) and related unplanned return to the operating room (1.7% vs. 0.0%, p=.016). Octogenarians comprised 9.5% of patients (75/789) and had more than twice the major morbidity rate (8.0%) than less elderly patients (3.8%), but this difference was not statistically significant (p = .118).

Conclusion: In a multicenter prospectively maintained cohort of men who underwent anti–incontinence surgery, major morbidity was infrequent, and was slightly higher after AUS placement as compared to sling placement. Despite a numerically higher complication rate as compared to younger patients, octogenarians’ overall complication rate was low, with no mortality or severe cardiovascular morbidity. Male slings and AUS are safe operations with low peri–operative complications, even in elderly patients.
Poster #NM71

IS PERIURETHRAL INJECTION OF MACROPLASTIQUE® A Viable Option for Patients with Post-Prostatectomy Urinary Incontinence?

Jessica Delong, MD¹; Robert Strehlow, MD²; Matthew Ingham, MD¹; Jeremy Tonkin, MD¹; Kurt McCammon, MD¹
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Presented By: Robert Strehlow

Introduction and Objectives: Male stress urinary incontinence is a significant morbidity following treatment for prostate cancer. Injectable therapies have traditionally not been successful for treatment, but post robotic prostatectomy patients may represent a different population. We assessed whether periurethral injection of Macroplastique® is effective for men with post-prostatectomy incontinence (PPI).

Methods: A retrospective chart review identified men who underwent periurethral injection of Macroplastique® for bothersome PPI between May, 2011 and December, 2014. Pre and post-operative pad use was recorded, as well as pertinent perioperative data. Success was defined as at least 50% improvement in incontinence.

Results: Sixteen men were identified. One patient underwent previous pelvic radiation. Average patient age was 66 years. Twelve of the 16 patients (75%) underwent prior AdVance™ sling placement that failed to sufficiently improve their PPI. Median preoperative pad use per day was 2.3 (range 1-6). At a mean follow up of 14 months, 11 of 16 men (68.8%) were successful after first injection. Seven of those 11 (63%) were “cured” with zero to one pads per day. Three patients went on to receive artificial urinary sphincters, and one to undergo AdVance™ placement. Three patients had a decrease of 25-66% in pad use after first injection, and underwent repeat Macroplastique® injections and are now dry. There were no major complications.

Conclusion: Periurethral injection of Macroplastique® has favorable results with short-term follow up for men with bothersome PPI. It has low morbidity, and does not preclude successful surgical intervention in the future if needed. Larger studies with longer follow up are needed to confirm these results.
Poster #NM72
PERIOPERATIVE COMPLICATIONS AFTER MALE INCONTINENCE SURGERY: EFFECT OF LENGTH OF STAY ON OUTCOMES
Allen Simms¹; Daniel Davenport, PhD¹; Sudhir Isharwal, MD²; Sara Johnson¹; Stephen Strup, MD¹; Shubham Gupta, MD¹
¹University of Kentucky, Lexington KY; ²University of Nebraska, Omaha Nebraska
Presented By: Allen Simms

Introduction and Objectives: To identify predictors of perioperative complications after the treatment of male urinary incontinence using a nationally validated outcomes-based program.

Methods: This is an analysis of data prospectively obtained from multiple centers through the American College of Surgeons National Surgery Quality Improvement Program (ACS-NSQIP). Patients who underwent male urethral sling (CPT 53440) or artificial urinary sphincter (AUS– CPT 53445) placement from 2011 – 2013 were included. The primary outcome was a composite 30–day major morbidity measure that included unplanned readmission related to the procedure, unplanned return to the operating room related to the procedure, infection, treated deep venous thrombosis or pulmonary embolism, pneumonia, or acute renal failure. Chi-square, student’s t or analysis of variance tests were performed as appropriate. Forward stepwise multivariable logistic regression (p for entry < .05, for exit > .10) was performed to identify predictors of morbidity. Significance was set at p < 0.01 due to multiple comparisons.

Results: 789 male patients underwent surgery during the study period: 370 slings, and 419 AUS. There were no perioperative deaths, and no cerebrovascular or cardiovascular complications occurred. The most common morbidities were related unplanned readmissions and related unplanned return to the operating room. Major morbidity was higher in AUS group than sling group (5.5% vs. 2.4%, p=.031). Patients who stayed overnight in the hospital did better than patients who were discharged the same day. After combining the procedures and adjusting for procedure type, overnight stay was associated with a decrease in major morbidity (odds ratio 0.40, 95% C.I. 0.17 to 0.94, p = .036).

Conclusion: In this unique multicenter cohort of men who underwent incontinence surgery, major morbidity was infrequent, and was slightly higher after AUS placement as compared to sling placement. Patients who stayed overnight after surgery appeared to have fewer complications compared to patients discharged the day of surgery. Corroborative and cost effectiveness studies are needed to further illuminate this interesting finding.
Poster #NM73
PREDICTORS OF POOR PATIENT SATISFACTION FOLLOWING PRIMARY AUS PLACEMENT AMONG MEN WITH AND WITHOUT A PRIOR HISTORY OF RADIATION
Marcelino Rivera, MD; Boyd Viers, MD; Linder Brain, MD; Laureano Rangel, MS; Ziegelmann Matthew, MD; Daniel Elliott, MD
Rochester, MN
Presented By: Marcelino Rivera

Introduction and Objectives: Artificial urinary sphincter (AUS) remains the gold standard treatment for men with stress urinary incontinence. Men with radiation therapy prior to AUS placement represent a group of patients with conflicting data regarding device outcomes which may influence patient satisfaction. There remains a dearth of information describing predictors of patient satisfaction amongst this group of patients. We aim to evaluate predictors of poor patient satisfaction among men undergoing primary AUS with and without a history of prior radiation.

Methods: From 1983-2011, 1802 AUS surgeries were performed at our institution. All men were invited to participate in a mail-in survey assessing AUS status, patient satisfaction, and urinary control. Men with and without radiation exposure prior to primary AUS placement (N=742) were included for analysis. Differences in survey responses, clinical characteristics were assessed with logistic regression models were used to evaluate characteristics associated with poor patient satisfaction.

Results: In total, 228 (31%) of men with an intact primary AUS completed the survey with a median follow-up of 8.4 years (IQR 5.8-11.4). Of these, 64 men had a prior history of radiation therapy. Men with a prior history of radiation therapy were more likely to be older and have a history of androgen deprivation therapy. Both groups reported a high likelihood of electing to have AUS surgery again 88% vs 91.4% (p=0.87) and recommending AUS surgery to a family member 86% vs. 93% (p=0.18). There was no significance difference in outcomes between cohorts regarding urinary continence with men noting substantial improvement in urinary control following surgery 72% vs. 78% (p=0.30), minimal bothersome leakage 57.1% vs. 66% (p=0.31), and 49% vs. 59% wearing ≤1 pad/day (p=0.06). On logistic regression analysis no clinical variables including prior sling were associated with poor patient satisfaction.

Conclusion: In a large cohort of primary AUS implants with and without prior radiation therapy we noted a high-level of satisfaction and modest urinary control at a median follow-up of over 8 years. Patients with prior radiation therapy tended to be older and were more likely to have a history of androgen deprivation therapy. Importantly, we found no differences in quality of life outcomes or predictors of poor satisfaction among patients with prior radiation therapy including those with prior sling.
UNDERSTANDING DETRUSOR CONTRACTION DURATION: WHAT ARE NORMAL PARAMETERS? AND WHAT ARE DETERMINING FACTORS?

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Presented By: Marissa Velez

Introduction and Objectives: Very little is reported in the literature regarding detrusor contraction duration (DCD). Our objectives were to analyze parameters for DCD and to identify determining factors.

Methods: We retrospectively reviewed urodynamics (UDS) studies of 741 patients from 2010-2015. 509 patients had measurable voluntary and involuntary detrusor contractions. For statistical analysis we used student's t-test and linear mixed model analysis.

Results: Mean age was 55.84±15.5 years with 66% of subjects being female. 73% of patients voided by voluntary contraction. 15% of patients had both voluntary and involuntary detrusor contractions during UDS. Mean DCD for all patients was 85.2 ± 62.8 sec. There was no difference in mean DCD between males and females (87.7±58.4 sec vs 85.2±62.8 sec, p=0.3). Distribution of all DCD can be seen in figure 1. Mean voluntary contractions were longer than involuntary contractions (96.3±41.7 sec vs 63.4±48 sec, p=0.000). In the mixed model DCD tended to shorten with older age (r=-0.03, p=0.08). Voluntary DCD was longer (r=31.7, p=0.000) than involuntary. Variation in DCD was similar for most indications for UDS and presenting symptoms. Patients with pelvic organ prolapse (POP) tended to have longer DCD (r=15, p=0.05). DCD was similar across all patient comorbidities and did not change in respect to variation in filling parameters or propensity for leakage. DCD increased with higher detrusor pressure at maximum flow (Pdet at Qmax) and with higher maximum Pdet (r=.26, p=0.005, r=0.07, p=0.008). DCD was longer in patients with plateau and staccato (interrupted) flow pattern (r=24.8, p=0.000, r=24.4, p=0.008). With respect to UDS diagnoses, detrusor overactivity incontinence was associated with significantly shorter DCD (r=-63.1, p=0.01).

Conclusion: There is a paucity of literature on DCD. DCD shortens with age and voluntary contractions have longer DCD than involuntary contraction. Our data supports previous studies that DCD may differ in obstructive processes as seen in the relation to (POP) and obstructive flow patterns.

Funded: None
Introduction and Objectives: Underactive bladder (UAB) is poorly understood. Recent review articles propose that potential etiologies for UAB include neurologic, idiopathic, iatrogenic, and myogenic factors and suggest various definitions of detrusor underactivity. However, there are few data that evaluate actual urodynamic (UDS) parameters between phenotypic groups. Our study aim was to determine if distinct urodynamic differences are present in women with UAB when classified by a neurogenic or non-neurogenic etiology.

Methods: We performed a retrospective review of our clinic patients diagnosed with UAB from 2012-2015 who underwent UDS. Each UDS was reviewed to identify patients with detrusor underactivity. Patients were excluded from the study if they had undergone pelvic surgery within 1 year or showed bladder outlet obstruction on UDS. Based on preliminary analyses, we stratified patients by presumed etiology into 2 cohorts: neurogenic (spinal cord injury, Parkinson’s disease, multiple sclerosis, cardiovascular accident, spinal surgery, and other neurologic condition) and non-neurogenic. Patient demographics, clinical history, and UDS parameters were then compared between groups using Fisher’s exact and t-test statistics.

Results: 115 women met study inclusion criteria (neurogenic n=64, non-neurogenic n=51). Mean age was 57.6±15.3 years and mean body mass index was 28.4±6.4, which did not differ between groups (p=0.42, p=0.10, respectively). There were no significant differences in any UDS parameter between non-neurogenic and neurogenic patients, respectively: first sensation (mean 186±28.4 vs. 125±19.0, p=0.07), normal desire (mean 302±32.9 vs. 294±24.6, p=0.85), strong desire (mean 436±35.4 vs. 394±26.9, p=0.34), cystometric capacity (mean 567±30.8 vs. 531±26.2, p=0.35), or pdet@Qmax (mean 16.4±2.5 vs. 16.7±2.3, p=0.92).

Conclusion: Using practical data, the concept of phenotyping patients by neurologic etiology did not appear to demonstrate significant UDS differences between neurogenic and non-neurogenic patients with UAB. Further opportunities exist to maximize the utility of UDS in UAB for all etiologies.
**Poster #NM76**

**DOES HISTORY OF HYSTERECTOMY ALTER BLADDER FUNCTION?**

Rena Malik, MD¹; Gregory T. Bales, MD¹; Doreen E. Chung, MD²

¹Chicago, IL; ²New York, NY

Presented By: Rena Malik

**Introduction and Objectives:** Previous studies have called into question the impact of hysterectomy on lower urinary tract function. Our objective was to compare urodynamic (UDS) findings in female patients with a history of hysterectomy to those without a history of hysterectomy.

**Methods:** A retrospective review of 450 women who underwent UDS after presenting to a voiding dysfunction clinic was conducted. UDS were conducted according to International Continence Society Standards. Fischer’s-exact test and student’s t-test were used to determine significance.

**Results:** 219 women met inclusion criteria. Women were excluded for history of neurogenic bladder, neurologic disease, diabetes mellitus or prior urologic or gynecologic surgery affecting bladder/urethral function. Sixty-six women had a history of hysterectomy and 155 had no previous relevant surgical history. There was no difference in demographics and presenting complaints between groups. Women with history of hysterectomy were more likely to have stress urinary incontinence (SUI) (75% vs. 47%, p=0.028), less likely to have detrusor underactivity defined as Pdet less than 10cmH2O less than or equal to 10 seconds (2% vs. 25%, p<0.001), and had reduced post-void residual (26.1mL vs. 90.1mL, p=0.012). At completion of UDS women with previous hysterectomy were more often diagnosed with SUI, less often with detrusor underactivity, abdominal voiding, incomplete emptying, impaired sensation, and acontractile detrusor (Table 1).

**Conclusion:** In our series, women who had hysterectomy, compared to those with no previous surgery affecting bladder function, were more likely to have urodynamic SUI and less often had bladder dysfunction related to contractility. These findings suggest that a history of hysterectomy is associated with higher rates of SUI postoperatively and may be associated with lower incidence of bladder dysfunction. Further prospective studies are needed to validate these findings and correlate with clinical practice.
THE USE OF LAVENDER AROMATHERAPY TO DECREASE WOMEN'S ANXIETY AND PAIN DURING MULTI-CHANNEL URODYNAMICS
Amira Quevedo, MD¹; Carrie Jung, MD¹; Niquelle Brown, MS²; Christina Dancz, MD²; Begum Ozel, MD²
¹LAC+USC Medical Center; ²Keck School of Medicine
Presented By: Amira Quevedo

Introduction and Objectives: Anxiety and pain during urodynamics can affect patient satisfaction with care. Lavender aromatherapy has been shown to decrease anxiety and pain during a wide array of medical procedures. Our purpose was to determine if there is a difference in anxiety and pain during urodynamics in women given lavender aromatherapy versus placebo.

Methods: This was a randomized, placebo controlled trial. Women scheduled for urodynamics who were ≥ 18 years of age, had baseline anxiety > 0, were able to give informed consent, and were able to read and write English or Spanish were invited to participate. Exclusion criteria were contraindications to urodynamics or lavender. Participants were randomized to lavender aromatherapy or placebo after informed consent was obtained and immediately before beginning the exam. Participants completed the Hospital Anxiety and Depression Survey (HADS) to establish baseline anxiety levels. Participants were asked to rate their level of anxiety and pain immediately before the exam; they then received the aromatherapy or placebo. Anxiety and pain were assessed after catheter placement and 15 min after the test. Institutional review board approval was obtained. The study was registered with the U.S. National Institutes of Health. There was no funding for this study.

Results: Eighty women met inclusion criteria, agreed to participate, and were enrolled in the study. Data collection sheets were lost for two women, both in the placebo group, thus data for 40 women who received the lavender aromatherapy and 38 women who received placebo were available for analysis. Mean (standard deviation) age and BMI were 49.0 (8.0) and 48.0 (7.5) years and 31.9 (5) and 32.3 (5.9) kg/m² for the lavender and placebo groups, respectively. 97% of all women were Hispanic ethnicity. The median HADS score was similar for the two groups: 9 and 10 for the lavender and placebo groups, respectively. The data regarding anxiety and pain are given in the Table 1. Post procedure anxiety was lower in the lavender group. Decrease in anxiety from baseline to catheter placement and 15 minutes post procedure were significantly greater in the lavender group.

Conclusion: Lavender aromatherapy may reduce anxiety during urodynamic testing.
Poster #NM78
URODYNAMIC CHARACTERISTICS AND THEIR IMPACT ON MANAGEMENT OF NON-NEUROGENIC VOIDING DYSFUNCTION IN YOUNG PATIENTS
Baruch Popovtzer, MD; Michael Vainrib, MD
Meir Medical Center affiliated to Tel Aviv University, Kfar-Saba, Israel
Presented By: Baruch Popovtzer

Introduction and Objectives: Non-neurogenic voiding dysfunction (NNVD) in young patients is a relatively rare condition causing a significant impairment to a quality of life. Urodynamic study (UDS) usually has a key role in management of refractory to a conservative treatment NNVD especially before invasive treatment in these patients. Our aims were to describe UDS characteristics and their impact on management of young NNVD.

Methods: IRB-approved retrospective review of UDS and charts of young (≤40 y.o.) patients with NNVD.

Results: Twenty-nine patients with a mean age of 32.8 (range 19-40) years old were included in a study. 16(56%) of them were male. 20/29(69%) had been treated conservatively any time before UDS and it lasted on average 21.5(range 1-240) months. 16/29(55%) didn't not have any treatment at the time of UDS, 8/16 quit their prior treatment. At the time of UDS 82%, 79%, 24% and 31% of patients had storage, voiding, urge and stress incontinence, respectively. 10/29(35%) had diagnostic non-invasive uroflowmetry. Table 1 describes UDS variables. 28/29(97%) offered a different treatment following UDS. However, only 5/28(18%) offered invasive treatment.

Conclusion: UDS is a very helpful study in managing NNVD in young patients. UDS helped to change/offer a treatment in the vast majority of patients and in a significant subset of them offered an invasive procedure.
Poster #NM79
PRE-SLING URODYNAMIC PARAMETERS ASSOCIATED WITH FUTURE NEED FOR SLING REVISION.
Iryna Crescenze, MD¹; Nitya Abraham, MD²; Anna Zampini, MD¹; Raymond Rackley, MD¹; Sandip Vasavada, MD¹; Courtenay Moore, MD¹
¹Cleveland Clinic, Cleveland, OH; ²Montefiore Medical Center, Bronx, NY
Presented By: Iryna Makovey

Introduction and Objectives: Synthetic midurethral slings (MUS) have become a widely used and successful surgical treatment option for stress urinary incontinence. However, some patients develop new voiding dysfunction (VD) after sling placement. Several studies have examined pre-operative risk factors, including urodynamic (UDS) parameters to predict post-operative VD. A subset analysis of the ValUE trial showed that while pre-operative UDS did not change outcomes it did increase the diagnosis of pre-operative voiding dysfunction as well as modify treatment plan. The objective this study is to examine the differences in urodynamic parameters between patients who required MUS revision for new VD compared to patients who did not undergo sling revision.

Methods: In a retrospective review of women who underwent MUS revision at our institution from 2/2005 to 6/2013, 27 patients had UDS prior to sling placement available for review. The case control group consisted of 35 patients who underwent MUS placement at our institution from 10/2013 to 7/2014 but did not undergo sling incision. Patients undergoing sling revision for pain, perforation, or extrusion were excluded.

Results: There were no differences in age, BMI, or history of DM in the two groups. Patients who had a sling incision were more likely to have a history of hysterectomy (78% vs. 51%, p < 0.039). Median time to sling incision was 25 months (range 0-93). Patients who eventually required a sling incision were less likely to be able to void with catheter in place during pre-sling UDS evaluation as opposed to those who did not have an incision (81% vs. 100%, p < 0.016) and more likely to have elevated voiding pressures prior to sling placement (Pdet at Qmax of > 20 mm H2O) but this did not reach statistical significance (67% vs. 40%, p < 0.097). There was no significant difference in mean capacity, vasalva leak point pressures, flow rates with and without a catheter, maximum detrusor pressures, or post void residual. Similar rate of pre-operative detrusor overactivity was observed in both groups.

Conclusion: Patients who are not able to void with a catheter in place for UDS prior to sling placement are at an increased risk for MUS revision. This information may be useful for pre-operative planning and treatment decision-making.
Neuromodulation/OAB Moderated Podium Session  
Friday, February 26, 2016  
4:00 p.m. – 5:00 p.m.  
Moderators: Jason M. Kim, MD  
Suzette E. Sutherland, MD, MS

Podium #27  
PATIENTS WITH A VARIETY OF UROLOGICAL SYMPTOMS IMPROVE AFTER TINED LEAD IMPLANT AT THE PUDENDAL NERVE

Kenneth M. Peters, MD; Kim A. Killinger, MSN; Priyanka Gupta, MD; Natalie Gaines, MD; Jamie Bartley, DO; Cheryl Wolfert, BSN; Judith A. Boura, MS; Jason Gilleran, MD  
Beaumont Health, Oakland University William Beaumont School of Medicine, Royal Oak, MI  
Presented By: Kenneth Peters

Introduction and Objectives:  
Tined lead placed directly at the pudendal nerve activates S2-4 thereby providing increased afferent stimulation compared to leads placed at S3. Pudendal neuromodulation (PNM) can be an effective alternative especially in patients that fail sacral neuromodulation (SNM). We examined lead migrations, reoperations and explants, and symptom changes after PNM.

Methods:  
Patients in our neuromodulation database that had PNM were reviewed. Demographics, history and data from patient completed voiding diaries, Interstitial Cystitis Symptom/Problem indices (ICSIPI) and Overactive Bladder symptom severity (OABq ss) and health related quality of life (HRQOL) questionnaires at pre-implant, three months, six months, and one, two, and three years were evaluated. Descriptive statistics and repeated measures analyses were performed.

Results:  
Of 168 patients that had PNM (83% female; mean age 53 ± 17.7 years), 143/168 (85%) proceeded to generator implant. Primary diagnoses were urgency/frequency with/without urge incontinence (66), interstitial cystitis (35), urinary retention (19), pelvic pain (19), neurological diagnosis (Two with pudendal neuropathy and one with ejaculatory dysfunction) and fecal incontinence (1). Eight patients had a secondary diagnosis of pudendal neuropathy. 86/143 (60%) had previously failed SNM. Mean follow up was 32.4 months, during which eight lead migrations requiring reoperation occurred. Twenty patients were explanted at median 14.4 months (range 0.7 to 62.9 months). Explant reasons were lack of symptom improvement (8), need for MRI (7), device related pain (2), symptoms improved (1), patient requested removal (1), and requesting continent diversion (1). On voiding diaries, improvements in urinary frequency (p=0.0003), urgency severity (p<0.0001), and incontinence episodes/day (p=0.0050) were demonstrated and average volume/void also slightly improved (p=0.0497). ICSIPI, OABq ss and HRQOL scores also improved (p<0.0001 for all). In the 86/143 (60%) patients that had urogenital pain at baseline, at three months 12/44 (27.3%) reported moderate/marked improvement in pain and 10/48 (20.8%) no longer had pain.

Conclusion:  
Pudendal neuromodulation is a reasonable alternative for select patients, particularly those who fail to respond to sacral stimulation. More research is needed in larger samples to identify which patients and symptoms improve most.

Funded: Philanthropy, Ministrelli Program for Urology Research and Education (MPURE)
Podium #28
LOWER RISK OF LEAD REVISION BASED ON “OPTIMAL” LEAD PLACEMENT DURING STAGE 1 SACRAL NEUROMODULATION

Javier Pizarro-Berdichevsky MD¹; Adrienne Quirouet, MD²; Marisa M. Clifton, MD²; Bradley C. Gill, MD²; Elodi J. Dielubanza, MD²; Henry T. Okafor MD²; Anna E. Faris, MD²; Courtenay K. Moore, MD²; Raymond R. Rackley MD²; Sandip P. Vasavada, MD²; Howard B. Goldman, MD²
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Presented By: Javier Pizarro-Berdichevsky

Introduction and Objectives: During Stage I InterStim procedures responses at all four electrodes of the lead are evaluated. For each electrode, a pelvic bellows and plantar flexion of the great toe response are recorded. Therefore, motor response can be graded on a scale of 0 (no response at any electrode) through eight (positive bellows and toe responses at all four electrodes). Currently, there is a paucity of literature defining optimal/suboptimal responses during stage I. Our aim was to describe the correlation of electrode response and lead revision.

Methods: A retrospective review of all Stage 1 from 2002-15 was performed. Motor responses were analyzed as a sum of positive bellows and toe responses at all four electrodes (of a possible total eight) or either the sum of bellows responses or great toe contractions at all four electrodes (both, a possible total of four). Univariate and multivariate analyses were performed for lead revision risk factors. Inclusion criteria were unilateral staged procedures with operative reports noting motor responses. Descriptive statistics are presented as percentages, mean±SD or median (interquartile range). Spearman’s Rho, Student’s t, Mann-Whitney U, Chi-Square, and Fisher’s Exact tests were used, as appropriate.

Results: 177 Stage 1 procedures qualified for analysis. The mean age in years was 58.4±15.9, 86.4% were females, 93.2% of the patients had overactive bladder diagnose, the mean BMI was 30±7.1, 19.9% were diabetic and 19.4% were smokers. The median follow up in months was 10.5(2-36). 34/177(19%) patients had revisions, which were negatively associated with total (toe +bellows) responses (p=0.023) or toe responses (p=0.018) regardless of bellows. Predictors of revision on logistic regression included age at implant (>59 years) and less than 4 (of a possible 8) responses (OR 5.5 CI 95% 2-14.7 and OR 4.2 CI 95% 1.4-12.9 respectively).

Conclusion: Of an overall 19% revision rate, most occurred in patients with fewer total electrode responses and specifically, less toe responses. Older patients (5.5 fold) and those with less than 4 of 8 responses (4.2 fold) were most likely to experience revision.
Podium #29
ARE BASELINE CHARACTERISTICS PREDICTIVE OF SACRAL NEUROMODULATION TEST STIMULATION RESPONSE IN A LARGE MULTICENTER TRIAL?
Steven Siegel¹; Jason Bennett, MD²; Jeffrey Mangel, MD³; Craig Comiter, MD⁴; Erin Bird, MD⁵; Tomas L. Griebling, MD⁶; Daniel Culkin, MD⁷; Suzette E. Sutherland, MD⁸; Karen Noblett, MD⁹; Kellie Berg, MS¹⁰; Fangyu Kan, MS¹⁰
¹Metro Urology; ²Female Pelvic Medicine, Grand Rapids, MI; ³MetroHealth Medical Center, Cleveland, OH; ⁴Stanford University, Stanford, CA; ⁵Scott and White Healthcare, Temple, TX; ⁶University of Kansas, Kansas City, KS; ⁷University of Oklahoma, OKC, OK; ⁸University of Washington, Seattle, WA; ⁹University of California, Riverside, CA; ¹⁰Medtronic, Minneapolis, MN
Presented By: Steven Siegel

Introduction and Objectives: This sub-analysis of the InSite Trial aims to characterize the association of baseline subject characteristics with response to sacral neuromodulation (SNM) test stimulation in a prospective, multicenter post-approval study. Subjects with bothersome symptoms of overactive bladder (OAB) including urinary urge incontinence (UI) and/or urgency-frequency (UF), who had failed at least one anticholinergic medication and had at least one medication not tried were included.

Methods: Subjects completed test stimulation with an implanted tined lead and external neurostimulator for a mean of 14 ± 3 days. Therapeutic success for UI was defined as a ≥ 50% improvement in average leaks/day and for UF as a ≥ 50% reduction in voids/day or a return to normal (<8 voids/day). Those that met criteria went on to receive the implantable neurostimulator. Subjects with both UI and UF required therapeutic success for just one indication to be implanted. Logistic regression was used and test stimulation response was regressed separately for UI and UF subjects on baseline characteristics, including age, race, gender, previous medications tried, years since diagnosis, daily voids or leaks, and medical history at baseline.

Results: A total of 340 subjects completed test stimulation; 339 subjects were implanted with the tined lead and one received a temporary lead. Mean age was 57 years and 91% were female. After test stimulation, 82% of UI subjects and 65% of UF subjects had therapeutic success. UI subjects were more likely to be test stimulation responders if they had previously tried one to two OAB medications as compared to three or more (OR(Odds Ratio)=2.08, p=0.045), and if they had a constipation history at baseline (OR=2.25, p=0.045). UF subjects were more likely to be test stimulation responders if they had a history of diarrhea at baseline (OR=2.36, p=0.015). No relationship of previous medication use with test stimulation response for UF subjects was observed.

Conclusion: This multicenter study shows that fewer prior medication trials (<3 vs. ≥3) is a predictor of a successful test stimulation response in UI patients. Constipation and diarrhea history were observed to be related to positive test stimulation response in UI and UF patients, respectively.
Podium #30
AGE-RELATED VARIABILITY IN SACRAL NEUROMODULATION IMPLANTATION AND REVISIONS
Bradley Gill, MD¹; Javier Pizarro-Berdichevsky, MD¹ ² ³; Adrienne Quirouet, MD¹; Marisa Clifton MD¹; Elodi Dielubanza, MD¹; Henry Okafor, MD¹; Howard Goldman, MD¹; Courtenay Moore, MD¹; Raymond Rackley, MD¹; Sandip Vasavada, MD¹; Anna Faris, BA
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Presented By: Anna Faris

Introduction and Objectives: Few studies have comprehensively evaluated age across multi-stage sacral neuromodulation (SNM) procedures. This study assessed the effects of age and patient characteristics on percutaneous nerve evaluation (PNE) and staged implant success, revisions, as well as explants.

Methods: An Institutional Review Board approved SNM database of all procedures from 2012 to 2015 was queried. Age, BMI, and comorbidities were collected and their effects on staged implant outcomes determined (Wilcoxon rank-sum, student’s t, chi-squared and Fisher’s exact tests). Patients were stratified into groups by decade of life. Logistic regression of staged implant outcomes, revisions, and explants by BMI, age, and comorbidities were performed. Staged implants and PNE were assessed separately. Data is shown mean(standard deviation) or median[interquartile range] with p<0.05 statistically significant. No funding was utilized.

Results: Of the 357 patients in our cohort, 85% were female and 15% male. Across age decades, rates of smoking decreased while rates of diabetes, stroke and cardiovascular disease generally increased. Average BMI increased with decade until declining after 70 years of age. Logistic modeling showed no significant relationships between staged implant outcome or explant and the aforementioned comorbidities, BMI, or age. Age was not significantly associated with PNE and staged implant success (successful vs unsuccessful PNE: 61.7[53.6-74.0] vs. 62.0[31.9-73.4] years p=0.84; stage 1 54.8(16.4) vs. 56.9(17.7) years p=0.48). Nor was age significantly different between patients who progressed to stage 2 and those who did not (55.2[43.9-68.2] vs 47.0[26.6-57.6] years respectively, p=0.16). However, younger age was significantly associated with revision; a 3% reduction in likelihood of revision was observed per additional year of age (Odds Ratio=0.97 95%CI[0.95-0.98] p<0.0001;). Time from implant to revision increased with age, where patients in their 20s, 50s, and 70s underwent revision at a median 18.0[4.7 -23.9], 22.8 [11.8, 54.0], and 42.5[22.8 -52.3] months after implantation, respectively.

Conclusion: Neither age nor comorbidities were associated with staged implant success, PNE success, or explants. However, over the course of treatment, despite higher rates of comorbidities in older patients, age was negatively associated with revisions, perhaps resulting from older patients having longer periods from implant to revision.
Does Sex Matter? A Matched Pairs Analysis of Neuromodulation Outcomes in Women and Men

Priyanka Gupta, MD¹; Jason Gilleran, MD²; Kim A. Killinger, MSN¹; Jamie Bartley, DO²; Natalie Gaines, MD¹; Cheryl Wolfert, BSN¹; Judith A. Boura, MS²; Kenneth M. Peters, MD²

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Presented By: Priyanka Gupta

Introduction and Objectives: There is a lack of understanding regarding differences in response to neuromodulation between women and men. We aim to evaluate whether baseline symptoms and outcomes are influenced by sex in a matched cohort.

Methods: Patients in our prospective database that had a tined lead placed were reviewed. Those that had initial success and subsequent implantable pulse generator (IPG) were matched on age and urologic diagnosis. History, voiding diaries, Interstitial Cystitis Symptom/Problem Index (ICSIPI) and Overactive Bladder symptom severity (OABq ss)/health related quality of life (HRQOL) at baseline, three and six months, and one, two, and three years were evaluated using descriptive statistics, repeated measures, and matched pair GEE or Mixed analyses.

Results: Of all 590 patients in the database, more women than men received an IPG (452/488; 92.6% vs. 84/102 men; 82.4%; p=0.0011). More women had interstitial cystitis/bladder pain syndrome and more men had urgency/frequency (p<0.0001). Eighty matched pairs (n=160; 81% age ≥50 years; 56.25% had urgency/frequency with urge incontinence-UI) were identified and evaluated. 19/79 (24.1%) of women had prior bladder suspension and 6/23 men (26%) had prior prostate surgery. In women vs. men, follow up (median 30.0 vs. 27.3 months; p=0.040), history of Parkinson’s (2.6% vs. 14.5%; p=0.012), and heart disease (36.3% vs. 55.7%; p=0.016) differed significantly. On voiding diaries, volume/void was greater in women at baseline (p=0.040); both groups improved over time (p<0.0001). Urinary frequency improved in both women/men (p=0.0010; p=0.0025). Incontinence severity improved only in women (p<0.0001); only men had significant decreases in incontinence episodes/day (p=0.017). The interaction between gender/time point suggested that women/men responded differently over time for voided volume (p=0.0111) and HRQOL (p=0.0131). ICSIPI, OABq ss, and HRQOL scores improved similarly in both groups (p=0.0001 for all measures in both groups) and treatment satisfaction did not differ.

Conclusion: More women undergo neuromodulation, have initial success and subsequent IPG implantation. Equal numbers in each cohort had UI at baseline, but UI episodes improved only in men and UI severity improved only in women. Both women and men experienced similar levels of symptom improvement on other measures and treatment satisfaction.

Funded: Philanthropy; Ministrelli Program for Urology Research and Education (MPURE)
Podium #32
A PILOT STUDY OF CARDIAC ELECTROPHYSIOLOGY CATHETERS TO MAP AND PACE BLADDER ELECTRICAL ACTIVITY
Robert Kelley, DO, MBA¹; Michael Vardy, MD²; Grant Simons, MD²; Henry Chen, MD³; Charles Ascher-Walsh, MD¹; Michael Brodman, MD¹
¹Icahn School of Medicine at Mount Sinai, New York, NY; ²Englewood Hospital, Englewood, NJ; ³Cardiologist Private Practice, Emeryville, CA
Presented By: Robert Kelley

Introduction and Objectives: This is a pilot study to evaluate the use of cardiac electrical mapping catheters to measure and pace bladder electrical activity. The cardiac catheters are FDA approved for pacing and recording within the heart. Our hypothesis is that the intrinsic electrical activity seen in animal studies of the bladder wall may also be seen in humans. Furthermore, this activity may function similarly to cardiac rhythms, allowing capture and excitation with mapping and pacing technology.

Methods: IRB approval was granted for this study and it was registered with clinicaltrials.gov. We recruited female patients requiring cystoscopy. During cystoscopy, a curved quadripolar catheter was introduced and contact was made with the right and left halves of the dome and trigone. Electrical activity was recorded at each point before and after delivery of a 0.5 to 3.0hz pacing current.

Results: Of the eight patients who were enrolled, seven had measurements of spontaneous bladder electrical activity, and one did not record due to equipment failure. The electrodes captured spontaneous depolarizations in both the trigone and the dome in microvolts. In addition, four patients had measurements with bladder pacing. When one electrode delivered a pacing current, the other electrodes detected subsequent action potentials in the trigone, but not in the dome.

Conclusion: Spontaneous signals obtained from the catheter show activity in microvolts. While these low-level signals could be consistent with noise, the voltage and morphology does resemble bladder action potentials seen in animal studies. Pacing triggered action potentials in the trigone but not the dome in this small study. Further testing of this method is needed to verify these signals and examine differences between patients with normal and abnormal bladder function.
IC/Pelvic/Geriatrics/BPH Moderated Poster Session  
Friday, February 26, 2016  
4:00 p.m. – 5:00 p.m.  
Moderators: W. Stuart Reynolds, MD, MPH  
Larissa V. Rodriguez, MD

Poster #M42  
COMPARISON OF SURGICAL OUTCOMES IN BENIGN PROSTATIC HYPERTROPHY MANAGEMENT USING THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM  
Devin Haddad, BS¹; Louis Krane, MD²; Gopal Badlani, MD¹; Majid Mirzazadeh, MD¹  
¹Wake Forest University School of Medicine, Winston-Salem, NC; ²National Cancer Institute, Bethesda, MD  
Presented By: Majid Mirzazadeh

Introduction and Objectives: Increasing surgical techniques are available to provide relief of prostatic obstruction from lower urinary tract symptoms in aging gentlemen. Single institutional data concerning complication rates for rare occurrences are unlikely to be drawn out. Therefore, to compare rates of surgical complications and readmission in management of benign prostatic hyperplasia, we queried the National Surgical Quality Improvement Database (NSQIP) for perioperative adverse events following transurethral resection of the prostate (TURP), laser photo-vaporization of the prostate (PVP), and simple prostatectomy.

Methods: Using the NSQIP database we identified TURP, PVP, and simple prostatectomy operations performed from 2010 to 2012 based on CPT codes 52601, 52648, and 55821, respectively. We examined multiple covariates to assess various perioperative outcomes, postoperative complications, and readmission rates.

Results: Data were grouped by procedure: TURP (N=6653), PVP (N=3274), and simple prostatectomy (N=343) in the NSQIP database. Comparing TURP to PVP, there were no significant differences in rates of readmission, surgical site infections, pneumonia, urinary tract infection, or sepsis. However, there was a higher rate of bleeding in TURP than in PVP (2.65% vs. 0.73%, p < 0.001). Comparing TURP to simple prostatectomy, there was no significant differences in rates of readmission, pneumonia, urinary tract infection, or sepsis. However, simple prostatectomy came with risk of superficial, deep, and organ surgical site infections (2.62%, 0.87%, and 0.87%, respectively). Simple prostatectomy also had a higher rate of bleeding relative to TURP (22.16% vs. 2.65%, p < 0.001). Comparing PVP to simple prostatectomy, there were no significant differences in rates of readmission, pneumonia, urinary tract infection, or sepsis. However, in addition to the risk of surgical site infections, simple prostatectomy also had a higher rate of bleeding (22.16% vs. 0.73%, p < 0.001).

Conclusion: In a review of three years of NSQIP data, TURP has a higher rate of bleeding than PVP, but there were no differences in readmission or infection rates. Simple prostatectomies had higher rates of various infections as well as bleeding. Reserving simple prostatectomy for larger sized prostates may contribute to higher bleeding rates, but prostate size is not captured in the NSQIP database and thus this possible association could not be assessed.
LASER TREATMENT OF BPH: A COMPARISON OF HOLMIUM ENUCLEATION AND DIODE VAPORIZATION OF THE PROSTATE
Alex Uhr, BS; Amar Raval, MD; Michael Amirian, MD; Whitney Smith, MD; Akhil Das, MD
Thomas Jefferson University Hospital, Philadelphia, PA
Presented By: Whitney Smith

Introduction and Objectives: Transurethral resection of the prostate (TURP) has been the gold standard in surgical management for bladder outlet obstruction due to benign prostatic hyperplasia (BPH). Laser therapies have emerged over the last two decades with many benefits over TURP including improved hemostasis, decreased fluid absorption, decreased electrolyte imbalances, and the potential to treat larger prostates. Two popular lasers currently in use for this purpose include the Holmium and Diode lasers. The objective was to compare outcomes between patients undergoing Holmium laser enucleation of the prostate (HoLEP) to Diode laser vaporization of the prostate (DiLVP).

Methods: A retrospective analysis of patients randomly assigned to undergo HoLEP (50 patients) or DiLVP (50 patients) at a single institution by a single, experienced surgeon from May 2012 to December 2013. Maximum flow rate (Qmax), post void residual (PVR), American Urologic Association Symptom Score (AUASS), complication rates, length of hospital stay, and catheter duration at four weeks were analyzed and compared using a Student’s T-test.

Results: At four-week follow up, patients who underwent HoLEP and DiLVP had a significant improvement in Qmax (7.23 to 20.62 mL/s and 6.97 to 21.13 mL/s), AUASS (21.77 to 6.99 and 18.83 to 9.88), and PVR (214 mL to 92 and 284 to 77 mL). Comparing the outcome measures between the two groups, there was no significant difference. For patients who underwent HoLEP, five patients required prolonged catheterization, one patient experienced continued lower urinary tract symptoms (LUTS) and ejaculation dysfunction, one patient had acute urinary retention requiring urethral catheterization in the emergency department, and one patient had gross hematuria managed conservatively. For patients who underwent DiLVP, four required prolonged catheterization, but no other complications were reported.

Conclusion: Although, there were more complications with HoLEP compared to DiLVP in this study, we feel as though both are equally safe procedures, and produced significant improvement in both subjective and objective symptom measurements.
Poster #M44
THE HUMANISTIC IMPACT OF OVERACTIVE BLADDER SYMPTOMS ON AMBULATORY OLDER PATIENTS
Daniel B. Ng, PharmD, MBA¹; Natalia Flores, PhD²; Kavita Nair, PhD³; Rita Kristy, MS¹; Jonathan Chapnick, BA²; Katherine Gooch, PhD¹; Carol Schermer, MD, MPH, FACS¹
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Presented By: Daniel Ng

Introduction and Objectives: Overactive bladder (OAB) is a urological condition characterized by the presence of bothersome urinary problems such as urinary urgency, frequent urination, nocturia, and urgency incontinence. Older individuals generally have higher prevalence of OAB with greater void and incontinence rates. The objective was to examine the impact of OAB symptom bother on older adults receiving assistance from family members or friends.

Methods: Ambulatory patients aged ≥65 years (n=330) who reported having OAB were recruited for a national telephone survey assessing how they manage their OAB symptoms and the impact of OAB on health outcomes. Patient Perception of Bladder Condition (PPBC) and International Consultation on Incontinence Questionnaire (ICIQ) were administered. The OAB Awareness Tool (OABAT-v8) measuring symptom bother was used to evaluate the following health outcomes: OAB treatment satisfaction (OAB Treatment Satisfaction Questionnaire; OAB-S), health-related quality of life (HRQoL; EQ-5D-5L), and mental health (Hospital Anxiety and Depression Scale; HADS). Patient descriptive statistics and correlations between OABAT-v8 and health outcomes were calculated.

Results: Mean patient age was 74 years, 77% female, 85% not in the work force with a mean OABAT-v8 score of 25 and a PPBC score of 3.9. 42% were not using pharmacologic treatment for OAB and 34% used prescription (Rx) OAB medication only, while 13% used only over-the-counter (OTC) treatment and 10% used a combination of Rx and OTC. Alternative methods used to cope with their OAB included 81% using products to manage leakage (e.g., pads), 89% limiting fluid intake and 77% going to the bathroom often even without an urge. On the ICIQ, patients reported urinating 7-8 times a day (30%), urinating three times at night (37%), needing to rush to the toilet most of the time (39%), and leaking before reaching the toilet (39%). Weak to moderate negative correlation between OABAT-v8 and all OAB-S subscales: OAB Control (r=-0.12, p=0.03) Impact on Daily Living (r=-0.49, p<0.01), and Satisfaction (r=-0.48, p<0.01). OABAT-v8 also was negatively correlated with HRQoL (r=-0.41, p<0.01) and positively associated with HADS anxiety (r=0.23, p<0.01).

Conclusion: OAB symptom bother was significantly associated with different components of OAB treatment satisfaction, HRQoL, and anxiety. OAB patients use multiple options to manage OAB symptoms and suffer from symptom bother. The study was funded by Astellas Pharma, Inc.
Poster #M45
NATIONAL ASSESSMENT OF ADVANCING AGE ON PERIOPERATIVE MORBIDITY AND LENGTH OF STAY ASSOCIATED WITH MINIMALLY INVASIVE SACROCOLPOPEXY
Zaid Chaudhry, MD¹; Seth A. Cohen, MD²; Christopher Tarnay, MD¹
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Presented By: Zaid Chaudhry

Introduction and Objectives: Sacrocolpopexy is considered the gold standard for apical prolapse repair. The use of minimally invasive sacrocolpopexy (MIS) has become popular as research shows similar outcomes and lower complication rates compared to open sacrocolpopexy. There is limited procedure specific information on perioperative outcomes for the geriatric population. The purpose of our study is to assess the impact of age on 30-day perioperative complications and length of stay (LOS) for MIS using a national database.

Methods: We performed an IRB-exempt retrospective analysis of prospectively collected data, using the National Surgical Quality Improvement Program (NSQIP) database to analyze MIS performed at participating hospitals from 2010 to 2013. MIS was identified using CPT code 57425 as the primary procedure. Age was stratified into five categories: <60, 60-64, 65-69, 70-74, and >75 years. Year of operation, race/ethnicity, ASA class, and body mass index (BMI) were controlled for. Complications were tabulated based on NSQIP categories and those with sufficient numbers were assessed using logistic multivariate regression. LOS was deemed abnormal if ≥3 days.

Results: 1201 patients were identified as having undergone MIS from 2010-2013 as their primary procedure. Mean patient age was 61.3 years old (+/- 11.1). Most patients were White non-Hispanic (84%). A majority of patients had an ASA class of 2 (68.3%) or an ASA class of 3 (23.6%). Older patients had a higher ASA class and lower BMI. The most common complications were urinary tract infection (UTI) (3.4%), readmission (2.7%), and return to the operating room (OR) (1.5%). UTI (p=0.93), readmission (p=0.38), and return to the OR (p=0.17) were not significantly different between age groups. The most common length of stay was 1 day for all age groups. Adjusted odds ratios showed no statistically significant difference in patients requiring a hospital stay of ≥3 days versus 1 day across all groups (Table).

Conclusion: Return to the OR, readmission, and UTI were the most common adverse events and did not differ significantly between age groups. LOS did not significantly differ between age groups. MIS has low complication rates and appears to be safe in older patients.
OVERACTIVE BLADDER SYMPTOMS' SEVERITY AND IMPACT ON A QUALITY OF LIFE AMONG SENIOR COMMUNITY HOUSING RESIDENTS

Michael Vainrib, MD
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Presented By: Michael Vainrib

Introduction and Objectives: Senior community housing is a housing complex designed for older adults who are generally able to care for themselves. Study objectives were to validate OAB symptoms’ severity (SS) and quality of life (QoL)-related questionnaires (Q’s) and to assess and identify risk factors for SS and their impact on QoL in the residents of those communities that usually have unique health care demands.

Methods: Six facilities were included prospectively. Every Q’s kit included: demographic data sheet, OAB-q (bother scale=BS and health-related QoL scale=HLQL-S), Patient Perception of Bladder Control (PPBC), EuroQol-EQ-5D-5L and Visual Analog Scale (VAS). Student’s t, Chi-square, Person correlation tests were used for a statistical analysis. Multivariate analysis was performed to identify risk factors for SS and their impact on QoL.

Results: 1082 Q's kits were mailed. Responding rate was 11% (117/1082). Gender distribution was similar to a general population in those facilities (male:female=1:2.3=35:82). Male residents were older (85.5 vs 82.6, p<0.01), most were married (26/35 vs 26/82, p<0.01) with an academic degree (22/35 vs 23/82, p<0.01). Mean(range) scores were: PPBC was 1.7(0-5), OAB-q-BS=24.7(0-100); OAB-q-HRQL-S=88.9(12.8-100) and subscales: coping=86.7(12.5-100), concern=90.1(0-100), sleep=83.3(20-100), social=96.2(20-100); VAS=69.1(10-90), EuroQol-EQ-5D-5L=81.2(0-100). Moderate/severe OAB symptoms and QoL impairment were in 51% and 21%, respectively. OAB-q-HRQL subscales had relatively high negative correlation with PPBS score (-0.49<r<-0.67) and OAB-q-BS (-0.49<r<-0.68). Relatively high positive correlations were observed between OAB-q symptom bother scale and PPBS score (r=0.7) as well as between VAS and EuroQol-EQ-5D-5L (r=0.47). Neither significant differences in scores were observed between genders nor were risk factors found to predict OAB SS and QoL impairment.

Conclusion: It was the largest cohort to apply and successfully validate OAB SS and QoL Q’s in vulnerable elderly living in those facilities. They had relatively high prevalence of moderate/severe OAB symptoms and fifth of them had moderate/severe QoL impairment. This study wasn’t able to identify any risk factors for SS and impairment on QoL. Future trials with larger cohorts are needed to identify possible risk factors helping to find a better way to deal with OAB symptoms and improve a QoL of each person living in those facilities; enhance well-being of the whole community.
Poster #M47
WHICH BLADDER INSTILLATIONS ARE MORE EFFECTIVE? DMSO VS. BUPIVACAINE/HEPARIN/TRIAMCINALONE: A RETROSPECTIVE REVIEW
Shilpa Iyer, MD, MPH¹; Elizabeth Lotsof BA²; Ying Zhou, PhD²; Alexis Tran, DO²; Carolyn Botros, DO²; Peter Sand, MD²; Roger Goldberg, MD²; Janet Tomezsko, MD²; Adam Gafni-Kane, MD²; Sylvia Botros, MD²
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Presented By: Shilpa Iyer

Introduction and Objectives: Bladder pain syndrome/Interstitial cystitis (BPS/IC) is a chronic and debilitating condition. Bladder instillations are among one of several treatment options. There are no conclusive comparative studies to determine if one instillation is better than the other. Our objective was to compare two different bladder instillations in patients with bladder pain: Dimethyl Sulfoxide (DMSO) vs bupivacaine mixed with heparin and triamcinolone (B/H/T).

Methods: We conducted a retrospective cohort study comparing the 2 treatment groups. The primary outcome measure was self-reported percentage improvement from baseline to after instillation series completion. Secondary outcome measures were change in daytime voiding frequency (hours) and change in nighttime voiding episodes. Additional variables analyzed as potential confounders included pelvic pain, cystoscopy findings, levator spasm, and fibromyalgia. Statistical analysis included 2 sided student t-test, Chi-squared, Poisson regression, and ANOVA comparisons.

We reviewed 193 patients seen for their first series of 6 bladder instillations from a Urogynecology office from 2012 and 2014. Patients were excluded if instillation type changed during their therapy course. We included 45 patients undergoing DMSO and 146 patients undergoing B/H/T treatment.

Results: There was no statistically significant difference in baseline characteristics between the two groups. DMSO patients had increased baseline nocturia (median 3 versus 2) and frequency (median 1.5 versus 2) compared to B/H/T. The DMSO group increased the time between daytime voids by 1.5 hours, reduced nighttime voiding episodes by 40% and overall noted a 63% improvement in symptoms. The B/H/T group increased the time between daytime voids by 1.4 hours, reduced nighttime voiding episodes by 8%, and overall noted a 51% improvement in symptoms. When comparing the two treatment groups, DMSO treatment resulted in significant decrease in nocturia episodes when compared to B/H/T (p= 0.023), greater percentage overall improvement (p=0.022), and no significant difference between the two groups for daytime frequency (p=0.497).

Conclusion: Installation treatment with B/H/T or DMSO increases time between daytime voids, decreases number of nighttime voids, and results in significant improvement in overall symptoms. When comparing treatment groups, DMSO results in greater improvement in nighttime voiding episodes, and a greater percentage improvement in symptoms.
**Poster #M48**

**RECURRENT URINARY TRACT INFECTIONS DUE TO BACTERIAL PERSISTENCE OR REINFECTION IN WOMEN: DOES THIS FACTOR IMPACT UPPER TRACT IMAGING FINDINGS?**

Yuefeng Wu; Lauren L. Rego; Alana L. Christie; Rebecca S. Lavelle; Philippe E. Zimmern
UT Southwestern Medical Center, Dallas, Texas
Presented By: Yuefeng Wu

**Introduction and Objectives:** To compare the rate of upper tract imaging abnormalities between recurrent UTI (RUTI) due to bacterial persistence or reinfection.

**Methods:** Following IRB approval, a prospectively maintained database of women with documented RUTIs (≥ 3 UTI/year) and extensive trigonitis was reviewed for demographic data (race, gravidity, parity, diabetes, immunosuppression, sexual activity), urine culture findings, and radiology-interpreted upper tract imaging study (renal ultrasound (US), CT scan, IVP) findings. Patients with irretrievable images, absent or incomplete urine culture results for review, no imaging study performed, an obvious source for RUTI (intermittent catheterization, indwelling catheter, > stage 2 anterior prolapse, neurogenic bladder), or history of pyelonephritis were excluded.

**Results:** From 2006 to 2014, 116 of 289 women with RUTIs met inclusion criteria. Mean age was 65.0±14.4 with 95% being Caucasian and 81% post-menopausal. Nearly one-third were sexually active and none has prolapse >stage 2. Forty-one percent (48/116) had persistent and 59% (68/116) had reinfection RUTI. Imaging studies included US alone (52), CT alone (26), US and CT (31), and IVP with US/CT (7). Of total imaging findings (N=58 in 55 women), 57/58 (98%) were noncontributory. All imaging findings were organized according to the urine culture findings (bacterial persistence or reinfection RUTI) (Table 1). One case (0.9%) of mild hydronephrosis was noted in the persistent RUTI group but not related to any clinical parameters. Escherichia coli was the dominant bacteria in both persistent (71%) and reinfection (47%) RUTI in most recently reported urine cultures.

**Conclusion:** This study reaffirms that upper tract imaging is not indicated for RUTI secondary to reinfection but also not for RUTI due to bacterial persistence, thus questioning the routine practice of upper tract studies in Caucasian post-menopausal women with RUTI.

Poster #M49
BILATERAL SACRAL NEUROMODULATION IN INTERSTITIAL CYSTITIS PATIENTS
Melissa Dawson, DO, MS1; Nima Shah, MD1; Rebecca Rinko, DO1; Danielle Atchley, CNP2; Kristene Whitmore, MD2
1Drexel University College of Medicine, Philadelphia, PA; 2Pelvic and Sexual Health Institute, Philadelphia, PA
Presented By: Melissa Dawson

Introduction and Objectives: Interstitial cystitis/bladder pain syndrome (IC/BPS) is defined as an unpleasant sensation perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than six weeks duration, in the absence of other causes. The objective of this study is to examine the changes in urinary, pain symptoms and anesthetic bladder capacities of patients after unilateral and bilateral SNM.

Methods: This is a retrospective study of patients with a known diagnosis of IC/BPS at a tertiary care center. These patients had failed other treatments. Patients who had unilateral SNM with subsequent bilateral SNM were included. Patient responses on visual analog scales (VAS) for pain with daily activities, frequency, urgency and nocturia episodes were recorded. Demographics were evaluated. Anesthetic bladder capacities were measured. Student t-tests and chi-squared analyses were used.

Results: Thirty-two patients were identified and mean age of the study population was 51. There were statistically significant changes in VAS scores in baseline visit to post-unilateral placement (p=0.002), baseline visit to post-bilateral placement (p=0.002), and baseline to one-year post-bilateral placement follow up (p=0.01). Comparison of baseline to post unilateral and post-bilateral placement revealed significant changes for nocturia (p=0.005, p=0.0002), frequency (p=0.01, p=0.0006), and VAS scores (p=0.002, p=0.002). Between unilateral and bilateral placement, there was significant change in frequency (p=0.04). Nine patients out of 32 had an average anesthetic bladder baseline capacity of 777mL. These patients had a repeat hydrodistention with an average maximum anesthetic bladder capacity after bilateral placement of 833mL. The overall anesthetic bladder capacity increased by 55mL (p=0.65).

Conclusion: SNM is an effective treatment for the symptoms of IC/BPS including urgency, frequency and pain. Patients with refractory pain may benefit from bilateral SNM. Bilateral SNM implants may increase anesthetic bladder capacity. There is a mild increase in capacity but limited to patients who had repeat hydrodistention post bilateral placement and may not be reflective of the IC/BPS population.
Poster #M50
CO-MORBIDITY WITH CHRONIC PAIN CONDITIONS IN WOMEN WITH OAB IS ASSOCIATED WITH GREATER URINARY SYMPTOM BURDEN
W. Stuart Reynolds, MD, MPH; Xuechao Zhang, MS; Roger Dmochowski, MD; Stephen Bruehl, PhD
Vanderbilt University Medical Center, Nashville, TN
Presented By: W. Stuart Reynolds

Introduction and Objectives: Few studies have examined co-morbidity of chronic pain conditions in women with overactive bladder (OAB). The aims of this study were to determine the prevalence of chronic pain conditions in women with OAB and whether co-morbidity with these conditions is associated with worse urinary symptoms.

Methods: We recruited 125 women with OAB through email advertisement to complete a survey of demographic and clinical data, severity and bother of urinary symptoms, health-related quality of life, and presence of chronic pain conditions (known as central sensitization syndromes, CSS) using validated measures when available, including fibromyalgia, IBS, migraine, pelvic pain, endometriosis, low back pain, neck pain, vulvodynia, TMJ, restless leg syndrome, and IC/BPS. Validated urinary questionnaires included: overactive bladder questionnaire short form; AUA symptom index; and ICIQ urinary incontinence short form. We measured somatic symptom burden with the Somatic Symptom Scale. We performed cluster analyses using hierarchical agglomerative (Ward’s linkage) to identify numbers of clusters of co-morbid CSS and non-hierarchical k-means methods to assign subjects to each cluster.

Results: Of participants, 93 (74%) reported at least one comorbid CSS, with 28 (22%) reporting three or more. The most common CSS were: low back pain (38%); migraine (30%); IBS (17%); pelvic pain (13%); restless leg syndrome (12%); TMJ (10%); neck pain (10%); fibromyalgia (7%); and IC/BPS (7%). There were few associations between individual type and increasing numbers of CSS and urinary measures. Cluster analyses identified four groups of women with varying frequency and types of CSS that did reflect significant differences in somatic symptom burden and urinary measures (Table). The strongest associations appeared to be in clusters of women with concomitant IBS, migraine and low back pain.

Conclusion: While individual and increased numbers of co-morbid CSS did not associate with urinary measures, clusters of CSS were associated with higher symptom burden and decreased OAB-specific health-related quality of life. These results suggest that co-morbidity may identify different phenotypes of subgroups of women with OAB.
Poster #NM80
COMPARISON BETWEEN LOWER URINARY TRACT SYMPTOMS AND URODYNAMIC OUTCOMES IN OCTOGENARIAN WOMEN
Michael Vainrib, MD
Meir Medical Center, Kfar-Saba, Israel
Presented By: Michael Vainrib

Introduction and Objectives: The prevalence of lower urinary tract symptoms (LUTS) increases with age. Urodynamic Study (UDS) usually is needed to distinguish between detrusor overactivity (DO), detrusor underactivity (DU) and detrusor hyperactivity with impaired contractility (DHIC). Clinical distinction between the three conditions may be challenging because LUTS may overlap. The aim was to compare LUTS and the UDS outcomes in octogenarian women.

Methods: IRB-approved retrospective review of UDS and charts of octogenarian women with LUTS included 29 patients divided by two study groups: DO and No DO. Their demographic, medical history and UDS parameters were compared. Student's t-test and chi-square or Fisher were used for continuous or categorical variables, respectively.

Results: Ten and 19 patients with a mean age of 82.9 were included in DO and No DO groups. Their demographic, medical history, and UDS parameters were compared. However, there were no significant differences found in demographic, storage and voiding LUTS, co-morbidities related to LUTS, prior history of urolithiasis, recurrent UTIs or hematuria, prior parity or a history of pelvic surgeries. Comparing UDS outcomes, there were significantly higher volumes of first desire, strong desire and maximal cystometric capacity in No DO group and significantly higher post-voiding residuals (PVR) at pressure-flow study (PFS) (p<0.05). In all but two patients in both groups, the results of UDS changed the treatment after the UDS.

Conclusion: Although there were no significant differences between demographic and medical history parameters, increased sensation with significantly lower PVR at PFS were found in DO group of octogenarian patients. Prospective and larger trials should be done in this subset of patients to verify an exact course of LUTS as soon as a different cause of their LUTS requires different treatment.
Poster #NM81
CYCLOPHOSPHAMIDE-INDUCED OVERACTIVE BLADDER VIA DOWNREGULATION OF RELAXATION FACTORS THROUGH DETRUSOR PDGFRα+ CELLS
Haeyeong Lee, PhD; Byoung Koh, BS; Robert Corrigan, BS; Lauren Peri, BS; Toby Chai, MD; Kenton Sanders, PhD; Sang Koh, MD, PhD
Presented By: Haeyeong Lee

Introduction and Objectives: Recently, morphology and functional role of PDGFRα+ cells have been characterized in the detrusor muscle layer. Detrusor relaxation is caused by activation of small conductance Ca2+ activated-K+ (SK) channels and purinergic inhibitory responses in detrusor PDGFRα+ cells. Loss of PDGFRα+ cells or alteration of P2Y receptors and SK channels will affect detrusor excitability. Cyclophosphamide (CYP)-treated animals exhibited overactive bladder (OAB). We hypothesized that the down-regulation of P2Y receptors and/or SK channels in PDGFRα+ cells will display the phenotype of OAB.

Methods: CYP was injected intraperitoneally in PDGFRα+/eGFP and SMC/eGFP mice. We harvested the detrusor muscle without suburothelium and disperse the cells for the fluorescence activated cell sorting (FACS). Sorted PDGFRα+ cells and smooth muscle cells (SMCs) were used for molecular study to compare the changes in transcripts between CYP-injected and control group. Transcripts were examined included; Pdgfra, P2ry1, P2ry2, P2ry4, Kcnn1, Kcnn2, Kcnn3 and inflammation marker (Il-6). Immunohistochemistry, mechanical contractility and ex vivo cystometry were also performed.

Results: Quantitative analysis of PCR revealed that CYP-injected detrusor muscle increased transcriptional expression of Il-6, but decreased the expression of Pdgfra. Transcriptional changes in CYP-injected sorted PDGFRα+ cells from PDGFRα+/eGFP mice showed Pdgfa, Kcnn3 (SK3), P2ry1, P2ry2 and P2ry4 genes were decreased compared with saline-injected control. Sorted SMCs from SMC/eGFP mice did not show significant expression of those genes and no detectable changes. Immunohistochemistry showed SK3 in PDGFRα immunopositivity was down-regulated in CYP-injected detrusor muscle. Apamin sensitivity on spontaneous contractile activity was decreased in decreased in CYP-injected mice compared to saline-injected mice. In ex vivo cystometry, increased spontaneous non-voiding contractions and less apamin sensitivity were observed in CYP-injected mice.

Conclusion: These are the first report to investigate the role of PDGFRα+ cells in relation to OAB mechanisms. In conclusion, we found that CYP-induced OAB are resulted from down regulation of PDGFRα, P2Y receptors and SK channels in CYP- injected bladder. Thus, CYP-induced OAB was caused by the functional changes of PDGFRα+ cells. These results provide novel mechanisms of functional role of PDGFRα+ cells on OAB.

Support: NIH P20-RR18751
Poster #NM82
PREOPERATIVE ANTIBIOTICS PRIOR TO BLADDER BIOPSY: ARE THEY NECESSARY?
Christopher I. Sayegh, BS; Marissa C. Velez, MD; Justin T. Matulay, MD; Kimberly L. Cooper, MD
Department of Urology, Columbia University, New York, New York
Presented By: Christopher Sayegh

Introduction and Objectives: Since the Centers for Medicare and Medicaid Services (CMS) guidelines for antibiotic prophylaxis were introduced as part of the Surgical Care Improvement Project, all cystoscopies performed in the operating room (OR) setting require the administration of pre-procedure antibiotics. At our institution, only patients with a documented urinary tract infection (UTI) receive antibiotics prior to bladder biopsy in the office setting. We sought to analyze the outcomes of routine bladder biopsies with fulguration done in the office versus those done with antibiotics in the OR setting per the CMS mandate in regards to post-procedural complications.

Methods: We retrospectively reviewed 147 patients who underwent bladder biopsy in either the office setting or in the ambulatory surgical suite. Patient characteristics and post-procedural outcomes were analyzed using the chi-square test and student’s t-test. Patients with documented UTI 30 days prior to procedure were excluded.

Results: Mean age of patients was 76.4±10.6 in the office group and 70.5±11.6 in the OR group (p=0.002). 64 patients were biopsied in the office vs. 83 in the OR. 5.9% of patients in the office group presented with post-procedural urinary symptoms including dysuria, fever, frequency and urgency vs. 8.4% of patients in the OR group (p=0.37). 1.6% of patients in the office group had positive post-procedural urine cultures (excluding commensal and asymptomatic bacteriuria) vs. 4.8% in the OR group (p=0.28). Ultimately, 4.7% of patients in the office group vs. 2.4% in the OR group were treated with antibiotics within 30 days after biopsy (p=0.45).

Conclusion: Given increasing resistance rates, antibiotic stewardship is of utmost importance. Since the introduction of the mandated use of antibiotics for routine procedures such as bladder biopsy, antibiotic use has markedly increased. In our cohort we did not identify significant differences in bladder biopsy infectious complications between those receiving antibiotic prophylaxis and those who did not.
Poster #NM83
PELVIC FLOOR MUSCLE INJECTIONS FOR HYPERTONICITY IN WOMEN
Natalie Gaines, MD¹; Esther Han, DO²; Priyanka Gupta, MD³; Morgan Farrah⁴; Kim A. Killinger, MSN³; Judith A. Boura³ ⁵; Jamie Bartley, DO³ ⁵; Jason Gilleran, MD³ ⁵; Larry T. Sirls, MD³ ⁵; Kenneth M. Peters, MD³ ⁵
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Presented By: Natalie Gaines

Introduction and Objectives: Pelvic floor dysfunction is a common cause of chronic pelvic pain. While pelvic floor physical therapy (PFPT) is a mainstay of treatment, many patients benefit from an additional modality of pain relief. Injections of local anesthetics and steroids to the levator muscles have been shown to provide short-term relief of acute pain and permit additional manipulation by the physical therapist. Here we evaluate outcomes after pelvic floor muscle injections in women at a tertiary-care center.

Methods: This is a retrospective review of women with chronic pelvic pain conditions who were treated with in-office pelvic floor muscle injections from January 2012 to August 2015 by six clinicians. Lidocaine 1% and 2%, bupivacaine 0.5%, and ropivicaine 0.5% were all used with or without triamcinolone 40 mg. Patients reported pain on a 0-10 scale (none to most severe) for the right and left levators before and 15 minutes after injection. Location, number of injections, and volume administered were recorded.

Results: 101 women with a mean age of 47 years had a total of 256 separate visits for pelvic floor muscle injections. 201/256 (78%) were undergoing concurrent PFPT. Median number of visits was 2 with a median of 28 days between visits. A standard template of up to six injections into the obturators/levators, three on the right side and three on the left was performed. Indications for pelvic floor injections included pelvic pain, interstitial cystitis with pelvic pain, pelvic floor dysfunction, pelvic floor muscle spasm, and vulvar vestibulitis syndrome. At each visit, a mean of five injections with an average total of 19 cc of anesthetic +/- steroid was administered. 65% of patients received bilateral pelvic floor muscle injections. Mean pain scores decreased by 6.3 and 6.7 on the VAS scale in the first two visits, respectively. Minor side effects including leg numbness, dizziness, nausea, bleeding, and headache occurred in 26/256 visits (10%).

Conclusion: Pelvic floor muscle injections can be an adjunct in women with pelvic floor dysfunction to control pain and may aid in manual PFPT.
Poster #NM84
CRITERIA FOR URINARY TRACT INFECTIONS IN PATIENTS WITH INTERSTITIAL CYSTITIS
Rebecca Rinko, DO¹; Melissa Dawson, DO, MS¹; Nima Shah, MD¹; Megan Danielle Atchley, CRNP²; Kristene Whitmore, MD²
¹Drexel University College of Medicine, Philadelphia, PA; ²Pelvic and Sexual Health Institute, Philadelphia PA
Presented By: Rebecca Rinko

Introduction and Objectives: Urinary tract infections (UTIs) are one of the known causes of a flare in symptoms for patients with Interstitial Cystitis (IC). Symptoms are nearly the same for UTI and IC. The objective of this study is to examine the changes in urinary and pain symptoms of patients with IC/PBS after treatment of a UTI. We hypothesize that lower colony counts of bacteria can cause acute symptoms in patients with IC and may warrant adequate treatment.

Methods: This is a preliminary retrospective chart review that took place at a single tertiary care institute in Philadelphia, Pennsylvania. Electronic medical records were reviewed for patients with the diagnosis of IC, by ICD-9 code, seen between June 2014 and July 2015. Those who met inclusion criteria were evaluated at their baseline visit, where a urine culture was obtained, and subsequent visits to assess symptoms, urine culture results, and outcome. Statistical analysis included student t-test and Chi-Square.

Results: A total of 508 patients were identified with IC. Of those patients, 140 met inclusion criteria. All patients were female. There was no statistical difference in age between the patients who were treated for their UTI and those that were not treated (p=0.52). The types of bacteria found in the cultures coincide with the most common causes of UTI. Urine cultures with <100,000 CFU/ml were found in 108 (77%) patients. The most commonly reported growth was <25,000 CFU/ml (48%) and 73% of those patients had symptoms. Regardless of symptom indices, 80 patients (74%) were given antibiotics. Sixty-eight patients were seen within six months of their baseline visit. Antibiotics were given to 47 (69%) of those patients, and 31 (66%) of those treated showed improved symptoms. Of the 17 (25%) patients that were not treated, 12 (71%) had improved symptoms (p=0.4).

Conclusion: In our study, we found that among women with IC who have a UTI with colony counts <100,000 CFU/ml, there is no statistically significant difference in reported symptoms between those that were given antibiotics, and those who did not. Urine cultures are usually considered UTI when the colony count is >100,000 CFU/ml. Colony counts of <100,000/ml are common among IC women with UTI (77%), higher than the general population (33%). Treatment of lower colony counts may ameliorate the flare in symptoms. A prospective trial with regimented follow up of these patients would help to better assess the relationship between IC and UTIs.
Poster #NM85
THE SIGNIFICANCE OF HEMATURIA IN AN IC FLARE
Uzma Chaudhry, MD¹; Krystal Hunter, MBA²; Chioma Uneegbu-Ogbonna³; Karolynn Echols, MD⁴
¹Cooper University Hospital, Camden NJ; ²Cooper University Hospital Camden, NJ; ³Rowan Medical School, Camden NJ; ⁴Cooper University Hospital, Camden NJ Department of Female Pelvic Medicine and Reconstructive Surgery
Presented By: Uzma Chaudhry

Introduction and Objectives: Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic and relapsing condition that can be difficult to diagnose. Particularly, symptomatic IC flares can be challenging to recognize and differentiate from other disease entities. A urine analysis (UA) is an important component of the American Urological Association’s (AUA) recommended algorithm for the basic assessment and management of IC. Our objective was to determine the significance of hematuria in an IC flare.

Methods: This is a retrospective chart review of 288 consecutive female patients treated at Cooper University Hospital Urogynecology Associates from January 2006 through June 2014 with an established diagnosis of IC/PBS using ICD codes. Patients with a diagnosis of an active urinary tract infection and or genitourinary malignancy were excluded from this analysis. The initial work up of microscopic hematuria as per AUA guidelines for these patients which included cystoscopy was negative. All study participants had a UA performed during suspected symptomatic flares as well as at least one UA performed during periods of disease quiescence. While the presence or absence of hematuria during IC flares was the primary measured outcome, other UA indices were also compared. Statistical methods included chi square analysis, predictive values, and sensitivity, and specificity to examine the strength of the findings. We have no financial funding to disclose.

Results: Out of 126 charts reviewed a total of 305 urine samples were analyzed for hematuria. A total 114 urine samples tested positive for blood; 90/114 were collected during IC flares, and 24/114 were collected during disease quiescence. Out of 191 urine samples that tested negative for blood, 107 were collected during IC flares, and 84 were collected during disease quiescence. The positive predictive value for hematuria in an IC flare was 79%, and the negative predictive value was 44%. The presence of hematuria in the IC flare group 46% (90/196) vs the no IC flare group 21% (23/108) and the absence of hematuria in the IC flare group 54% (107/197) vs the non-flare group 78% (84/108) was significant (p<0.001).

Samples collected by straight catheterization and clean catch yielded similar data.

Conclusion: An IC flare can occur in the absence of hematuria. However, the presence of hematuria maybe highly suggestive of an IC flare in appropriate clinical circumstances and possibly can be used to gauge successful treatment in the future.
A TERTIARY CARE CENTER EXPERIENCE WITH UROTHELIAL CARCINOMA PRESENTING AS BLADDER PAIN SYNDROME
Eliza Lamin, MD; Lisa Parrillo, MD; Nicolas Seranio; Philip Hanno, MD; Ariana Smith, MD
Philadelphia
Presented By: Eliza Lamin

Introduction and Objectives: It is commonly known that irritative voiding symptoms can be a sign of an underlying urothelial cell carcinoma (UCC). However these same irritative voiding symptoms, (urgency, frequency, suprapubic discomfort) are also common symptoms of Bladder Pain Syndrome (BPS)/Interstitial Cystitis (IC). (1) It is important to distinguish the patients with underlying UCC from those with BPS. This was first shown in 1973, in a study of 53 patients treated for IC, 12 of them were discovered to have UCC. (2) This represents a 22% misdiagnosis rate, compared to a more recent study showing a rate of 0.4% of UCC in women with irritative voiding symptoms. (3) Our objective was to determine the percentage of patients presenting to a tertiary referral center for BPS who were found to have UCC.

Methods: We performed a retrospective chart review of patients presenting with irritative voiding symptoms coded as having BPS to our tertiary care center. We reviewed 759 female patients between 18-75 years of age presenting between 2012 and 2015. All patients underwent thorough evaluation including, urinalysis, and when deemed necessary by the provider a cystoscopy. AUA guidelines for the evaluation and treatment of BPS/IC include a urinalysis and urine culture. The guidelines only recommend a cytology if the patient has a smoking history. A cystoscopy is only recommended if there is evidence of hematuria, or signs and symptoms of complicated BPS/IC, such as GI or GYN complaints.

Results: We found that two patients (.28%) who presented with BPS were ultimately found to have UCC. The women did not have microhematuria on urinalysis, they were both nonsmokers. In one patient the symptoms were discovered when her well controlled BPS suddenly worsened. She was ultimately found to have CIS. She had not had any prior cystoscopies. The second patient had a cystoscopy at her initial diagnosis and then several years later when her symptoms worsened she had a repeat cystoscopy which demonstrated PUNLMP. Neither patient had cytology done when she first presented, however when the symptoms worsened a cytology was done on both patients and showed reactive urothelial cells.

Conclusion: Irritative voiding symptoms raise suspicion for CIS/UCC however many patients with BPS present with similar symptoms but do not necessarily undergo a full UCC evaluation. Fortunately, an extremely small percentage of patients referred to a tertiary care center for BPS were found to have UCC.
RESIDUAL PELVIC PAIN/DYSpareUNIA MANAGEMENT AFTER SYNTHETIC VAGINAL MESH AND/OR SLING REMOVAL
Annie Abraham; Kelly Scott, MD; Philippe E. Zimmern, MD
UT Southwestern Medical Center, Dallas, TX
Presented By: Annie Abraham

Introduction and Objectives: To evaluate the outcome of women with pelvic pain and/or dyspareunia after synthetic vaginal mesh and/or sling removal who were referred to Physical Medicine and Rehabilitation (PM&R).

Methods: Following IRB approval, a neutral reviewer collected data (EPIC) regarding consecutive patients with pelvic pain/dyspareunia following mesh and/or sling removal referred to PM&R. Excluded were women lost to follow-up after initial PM&R consultation. Primary outcome was pelvic pain score assessed by a Numeric Pain Rating Scale (NPRS), for which values were obtained at each physiatrist and physical therapist visit. Success was defined as a 50% or greater reduction in pain score comparing initial visit and visit after most recent therapy. All patients underwent pelvic floor physical therapy (PT), with medications (SSRIs/SNRIs, muscle relaxers, anti-convulsants, steroids, etc.) and injections (steroid trigger point injections, CT-guided nerve blocks, botox injections, etc.) as necessary. In addition, magnetic resonance neurography (MRN) was employed to confirm nerve-related diagnoses if clinically indicated.

Results: From 2010 to 2015, 38 women were included in the analysis. Of these, four had mesh placement, 19 synthetic sling placement (mostly retropubic sling), and 15 both. Patients outcomes (Flow chart) were sorted into three categories: non-compliance with the treatment program (n=11); compliance with the treatment program but with no improvement in pain score, known as plateau of progress (n=14); and compliance with the program with improvement in pain score (n=13). MRN, performed on 16 women, confirmed pudendal neuropathy in nine of them. The two compliant patients treated for dyspareunia alone experienced >80% improvement. Eight of 34 (23.5%) achieved a successful outcome with >50% improvement in pain score.

Conclusion: In women with refractory pelvic pain after vaginal mesh/sling removal, the multimodal role of PM&R is critical to provide additional benefit in pain management and/or dyspareunia.
Introduction and Objectives: GreenLight laser vaporization of the prostate (GL) is commonly used in management of benign prostatic hyperplasia (BPH). GL is generally safe, with hematuria and urinary retention being the most frequent complications necessitating reoperation. Though uncommon, severe complications can occur. We sought to characterize management of new onset debilitating lower urinary tract symptoms (LUTS) with incontinence following GL and describe management of this challenging clinical presentation.

Methods: We reviewed all patients referred to our institution for severe LUTS and incontinence following GL. Initial evaluation included urodynamics (UDS), cystoscopy, and AUA symptom score (AUASS). Following initial evaluation, patients were managed according to clinician judgment and patient preference with stepwise escalation of treatment invasiveness as required.

Results: Six patients met inclusion criteria. Mean age was 59.2 ± 2.6 years at the time of GL. Mean AUASS at tertiary presentation was 23.5 ± 2.3. On UDS, 5 patients (83%) had detrusor overactivity, 3 with leak. Mean Abdominal Leak Point Pressure was 37.2 ± 10.7 cmH2O. Mean maximum flow rate was 9.6 ± 3.1 ml/s and detrusor pressure at maximum flow 19.9 ± 7.5 cmH2O. All patients had post void residuals <50 mL. Findings on cystoscopy included: prostatic regrowth (2), bladder neck contracture (1), necrotic bladder neck (1), and non-coapting external sphincter (2). One patient with advanced lung cancer declined further operative management. The remaining 5 patients underwent an average of 4.6 ± 1.7 additional procedures with the first procedure occurring 202 ± 40 days after GL. These procedures included: procedures for urethral stricture disease (7), intradetrusor Onabotulinumtoxin A injection (5), artificial urinary sphincter placement and revisions (3), sacral neuromodulation (3), penile prosthesis (1), suprapubic tube (1), repeat GL (1) and simple cystectomy in one patient with necrotic bladder neck and trigone with bilateral grade V vesicoureteral reflux.

Conclusion: This series highlights rare but debilitating sequelae of GL and the exceptional clinical challenge these cases represent. It is unclear if these outcomes represent poor patient selection, improper operative technique, or underreported operative complications associated with GL. These data support a thorough pre-operative discussion of the risks of this procedure and may suggest a role for UDS prior to GL in select patients.
APPLICATION OF THE D INDEX: NOMOGRAMS ALLOWING EVALUATION OF BLADDER OUTLET OBSTRUCTION (BOO) IN MEN FROM FREE UROFLOWS (FF)
Françoise Valentini, MD, PhD¹; Pierre Nelson, PhD¹; Philippe Zimmern, MD²
¹Hôpital Rothschild, Université Pierre et Marie Curie; ²UTSouthwestern Medical Center, Dallas, TX
Presented By: Françoise Valentini

**Introduction and Objectives:** Benign prostatic enlargement (BPE) and its consequences, BOO and acute urinary retention (AUR) are a common condition in the aging man. Abrams-Griffiths number (A-G) is considered as the gold standard to evaluate BOO. Unfortunately it needs invasive investigation. The D index derived from FF has been developed to assist in the management of BPE patients [1]. Our purpose was to build nomograms, based on D (non-invasive) to evaluate BOO in men, and usable by a general practitioner.

**Methods:** The VBN mathematical micturition model [2] was applied to analyze families of possible voidings having the same filling volume (Vini) and the same flow curve but different detrusor pressure curves [1]. All had the same maximum flow rate (Qmax), voided volume (Vv) and post-void residual (PVR). One family was characterized by a value of D index (prostatic obstruction assuming a normal detrusor contractility i.e. k = 1) [1]. Simulations were performed for the Vini range [100-700 mL]. Then, nomograms were built in the planes [Vini and Vv - Qmax]. Correlation D (in cm H2O) vs. A-G was <18.5 unobstructed, 18.5≤D≤32.5 equivocal, D>32.5 obstructed [1]. Examples of comparisons with A-G cut-off values were made.

**Results:** Iso-D curves in the plane [Vini - Qmax] (left) and in the plane [Vv - Qmax] (right) were built. Algebraic fitting of the curves allowed accurate interpolations between curves. Four examples were given (green circles) of D vs. A-G.

**Conclusion:** For the first time, nomograms only based on FF, thus needing few instrumental devices (flow meter ± bladder scan) and thus usable by a general practitioner, are proposed for evaluation of BOO in BPE men. Further studies will be devoted to large clinical applications. 1- BJU Int 2008; 101: 995-9; 2- NAU 2000; 19:153-76
Poster #NM91
UROLOGICAL COMPLICATIONS IN SPINAL CORD INJURY PATIENTS (SCI): A 40-TO-50 YEAR FOLLOW-UP STUDY
Yunliang Gao, MD¹; Teresa Danforth, MD²; David Ginsberg, MD¹
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Presented By: Yunliang Gao

Introduction and Objectives: To assess the types of urological complications in SCI patients and explore the association of complications with bladder management types.

Methods: 24 SCI patients (14 M/10 F) with a mean follow-up of 46.8 years (range 40 - 50 years) were included. Review of medical charts included: demographics, bladder management and urological complications. Bladder management was determined at five-year intervals. Urinary tract infections (UTI) were recorded per five years follow-up.

Results: Recurrent UTI was noted in all patients, with an average episode rate of 7/5 years. UTI peaks occurred at 30 years (6/5 years) and 50 years (9/5 years) post injury. After UTI, hydronephrosis was the most commonly found urological complication. Autonomic dysreflexia (AD) occurred earliest in this patient population. 45% of patients used condom drainage as their primary management; bladder stones occurred among 54% of these patients. 21% of patients used an indwelling catheter as their primary management; hydronephrosis occurred among 80% of these patients. 75% of male patients used condom drainage as initial bladder management, which decreased to 42% at 40 years post injury. 50% of female patients chose indwelling urethral as initial management and that remained unchanged 40 years post injury. In regard to bladder management: 42% - never changed, 25% - one change, 8% - two changes, 17% - three changes, 8% - four changes.

Conclusion: With the longest follow-up described in patients with NGB secondary to SCI, a wide range of urologic complications occur in SCI patients. These complications appear to be related to types of bladder managements. Patients that live with SCI for long periods of time continue to have complications that require urological follow-up and intervention.
DIABETIC BLADDER DYSFUNCTION AND DETRUSOR PDGFRA+ CELLS
Haeyeong Lee, PhD¹; Byoung Koh, BS¹; Robert Corrigan, BS¹; Lauren Peri, BS¹; Toby Chai, MD²; Kenton Sanders, PhD¹; Sang Koh, MD PhD¹
¹UNR.Reno, NV; ²Yale School of Medicine
Presented By: Haeyeong Lee

Introduction and Objectives: Diabetic bladder dysfunction (DBD) is the most common complication of DM in lower urinary tract. Clinical manifestations of DBD involve combination of storage and voiding bladder problems. Although a number of clinical studies have reported overactive bladder (OAB), the pathophysiological mechanisms remain unclear. Streptozotocin (STZ) is widely used to induce type 1 DM in rodent models. These animals exhibited increased voiding frequency, residual volume, contraction-duration, and compliance. There is an abundance of PDGFRα+ cells in detrusor muscles. This cell involves the membrane stabilization during filling. Thus we investigate the molecular and protein phenotype of PDGFRα+ cells in STZ-induced type 1 DM animal model to characterize the role of these cells that contributes to development of OAB.

Methods: We employed molecular approaches, immunohistochemistry, organ bath for force measurement and ex-vivo cystometry. Pdgfra and Kccn1-3 transcripts were analyzed for molecular expression. PDGFRα immunoreactivity in control and STZ-induced type 1 diabetic detrusors were also examined. Since SK channels are highly expressed in detrusor PDGFRα+ cells which are involved in the membrane stabilization, we tested the effect of SK channel blockers on transmural nerve-evoked (EFS) contractions and ex vivo compliance in both mice.

Results: In quantitative analysis of transcripts, Pdgfra and Kcnn3 transcripts in STZ-induced type 1 diabetic detrusor were significantly decreased compared with control detrusor. Immunohistochemistry revealed the reduced immunoreactivity of PDGFRα+ in STZ-induced type 1 diabetic detrusors. In isometric force measurements, control mouse showed frequency (1-20 Hz) dependent contractions and apamin treatment increased contractile force in responses to EFS. However, STZ-induced type 1 diabetic detrusors decreased apamin-sensitivity in EFS-evoked contractions. In ex-vivo cystometry, STZ-injected bladder revealed an increase in the amplitude and frequency of non-voiding pressure responses during filling. These data suggest that down-regulation of PDGFRα+ in STZ-induced type 1 diabetic detrusors might involve the development of OAB during early diabetic stage.

Conclusion: The present data support the hypothesis that PDGFRα receptors and SK channels in PDGFRα+ cells plays an important pathological role as key factors to induce detrusor overactivity.

Support: DiaComp Pilot & Feasibility project, 13GHSU267

Poster #NM93 - WITHDRAWN
Female Urology/ Incontinence Podium Session  
Saturday, February 27, 2016  
8:00 a.m. – 9:30 a.m.  
Moderators: E. Ann Gormley, MD  
Philippe E. Zimmern, MD

Podium #33
SLING PROCEDURES FOR THE TREATMENT OF STRESS URINARY INCONTINENCE (SUI): COMPARISON OF NATIONAL PRACTICE PATTERNS BETWEEN UROLOGISTS AND GYNECOLOGISTS
Marissa C. Velez, MD; Maxwell B. James; Justin T. Matulay, MD; Wilson Sui; Gina M. Badalato, MD; Doreen E. Chung, MD  
Department of Urology, Columbia University, New York, New York  
Presented By: Maxwell B. James

Introduction and Objectives: Thus far, no study has compared practice patterns of sling procedures by provider type. We analyzed the American College of Surgeons National Surgical Quality Improvement Project (NSQIP) database to compare trends in sling surgery for stress urinary incontinence (SUI), focusing on differences between urologic and gynecologic surgeons.

Methods: Current Procedural Terminology was used to identify patients undergoing slings. Logistic regression analysis was used to identify characteristics associated with surgeon type.

Results: 21,279 sling procedures were identified in NSQIP (2006-2013). 97.9% were done open with the remaining minimally-invasive. Urologists performed 5402(25%) procedures and gynecologists performed 15877(75%). Since 2009, proportion of procedures done by urologists has declined from 39% to 24% in 2013 (Figure 1). Gynecologists were more likely to treat younger patients (55.7±12.9 vs. 57.7±13.0 years, p<0.01), non-white patients (8.9% vs. 5.9% p<0.01), those with lower ASA (79.2% Class 1-2, p=0.00) and better functional status (99% vs. 99% fully functional, p<0.01). Gynecologists were also more likely to have residents in procedures (41% vs. 32%, p<0.01), and to perform concomitant hysterectomy (35.5% vs. 2.1%, p<0.01), or other prolapse repairs (55.8% vs. 16.5%, p=0.00). In multivariate analysis, younger patient age, (p < 0.001), diabetes (p=0.004), and non-smoking status (p=<0.001) remained associated with gynecologic surgeon type. For surgical variables, gynecology slings had longer operative times (p<0.001) and were more likely to be performed with hysterectomy and prolapse procedures (p < 0.001).

Conclusion: Since 2009, the relative number of sling procedures performed by urologists has declined. Slings performed by gynecologists had a tendency towards younger and healthier patients and were associated with more concomitant procedures. Further investigation into provider availability, subspecialty training, geographic, and socioeconomic data may provide further understanding into the trends in provider type for sling surgery. More data on complications is needed to assess if any clinical implications for surgeon type exist.
Podium #34
QUALITY OF STUDIES REPORTING SAFETY AND EFFICACY OF SYNTHETIC MID-URETHRAL SLINGS (SMUS)
Mubashir Billah, BA¹; Salma Ahsanuddin, BBA, BS¹; Blaivas Jerry, MD²
¹Brooklyn, NY; ²New York, NY
Presented By: Mubashir Billah

Introduction and Objectives: Over three million SMUS have been performed worldwide. They are widely described as being safe and effective, but controversy has arisen over their safety profile. The objective of this study is to evaluate the quality of the research methodologies, the role of conflicts of interest and the possibility of publication bias.

Methods: We performed a literature review using free text protocols that included search terms for urinary incontinence and all types of SMUS from 2008 – 2014. Studies of mesh slings that reported on safety and efficacy were included. Exclusion criteria included POP, male, foreign language, no follow up, & pediatric. Outcome measures included duration of follow up, methodology (prompted and unprompted anamnesis, questionnaires, prospective vs retrospective,), funding sources, conflict of interest and success rate.

Results: We identified 1305 articles; 63 were reviewed. Although 64% of the studies were prospective, only four described prospective methodology for detecting complications other than physical exam and none described methodology to define “safety.” Mean follow up was 2.4 years (range: 2 to 201 months) and only 19 studies were ≥5 yrs. The mean time to complications was 5.9 months (range: 0 – 11 years). Serious complications (including refractory pain) were reported in at least 8% and they occurred as long as 11 years after SMUS. 12% were funded by industry, 53% were non-industry funded & 35% did not disclose a funding source. Papers reporting a conflict of interest had a mean calculated complication rate of 15% and papers with no conflict of interest had a mean complication rate of 20%. Despite near universal claims of safety, no studies defined what they meant by safety and the overall serious complication rate was at least 8%. Is that safe? Who decides? Only 19 studies followed up for ≥5 yrs and only six even collected information about pain.

Conclusion: The literature describing mesh complications & safety is of poor quality and the effect of conflict of interest and publication bias needs much more study. Publishers should require direct reporting of conflicts of interest. “Safety and efficacy” are not scientific terms; one should be circumspect about their usage.
Introduction and Objectives: Advanced pelvic organ prolapse (POP) repair is associated with development of denovo stress urinary incontinence (SUI). Significant controversy exists regarding which patients to treat preoperatively and how best to counsel patients regarding outcomes. In this study we review our experience with robotic assisted prolapse repair (RAPS) and SUI outcomes.

Methods: Review of our retrospective longitudinal RAPS database with patients that have undergone RAPS procedures between 2006-2014 by five fellowship-trained surgeons. Patients were separated into two cohorts; those that underwent MUS at the time of RAPS and those that did not. Demographics, history, operative, and peri-operative outcomes were compared. Descriptive statistics, Pearson’s Chi-square test, and Fisher’s Exact tests were performed.

Results: We identified 196 patients that underwent RAPS procedures between 2006-2014. Mean follow-up was 13.6 months. 91 patients had SUI at baseline and underwent a SUI procedure concomitantly (SUITX+). 105 patients did not have SUI at baseline and did not have a concomitant SUI procedure (SUITX-). In the SUITX+ cohort, 79 had a transobturator sling, 3 retropubic sling, 7 retropubic bladder neck suspension, and two miniarc sling. Persistent SUI was reported by 4/89 (4.5%) of the SUITX+ cohort and denovo SUI by 22/101 (22%) of the SUITX- cohort, p=0.0005. 1/89 SUI+ and 2/100 SUI- patients developed worse SUI. 2/91 (2.2%) women in the SUITX+ cohort had a subsequent SUI procedure, one periurethral injection and 1 midurethral sling. 9/105 (8.6%) women in the SUITX- cohort had subsequent SUI procedure, two periurethral injection and seven midurethral sling. In the SUITX+ cohort sling specific complications included 1/91 (1%) woman that required sling revision for obstructed voiding and 1/91 (1%) woman that had sling mesh exposure treated with estrogen.

Conclusion: We observed a 22% de novo SUI rate after RAPS procedures, yet less than half of these chose to have another SUI procedure. Women who had a concurrent sling had a very low rate of SUI persistence or of sling specific complications.
OUTCOME MEASURES MOST COMMONLY USED IN THE LITERATURE TO ASSESS STRESS INCONTINENCE SURGERY IN WOMEN OVER THE PAST 5 YEARS: ...AND THE WINNER IS!
Carlos Finsterbusch, MD; Maude Carmel, MD; Philippe E. Zimmern, MD
UT Southwestern Medical Center, Dallas, Texas
Presented By: Carlos Finsterbusch

Introduction and Objectives: The necessity of defining success of stress urinary incontinence (SUI) surgery by universally agreed outcome measures (OM) to unify published data in the literature is a pressing goal. We reviewed the literature over the past 5 years to determine the most popular contenders for post-SUI surgery OMs.

Methods: A PUBMED search of all English-written, full text, articles published between 2010 and 2015 on SUI surgery in women was performed. A list of randomized trials (RCT), prospective (P) and retrospective (R) studies was obtained. Exclusion criteria were men, children, neurogenic patients, and non-English written articles. Key parameters extracted included geographic origin of the article, FPMRS specialty, study design, cohort size, number of subjective and objective OMs used, and journal selected for publication.

Results: Ninety-nine articles met inclusion criteria. Articles were from RCT (55%), P (40%) or R (5%). The yearly average of articles published remained stable over time at 17/year (RCT 9, P 7, R 1). The most commonly used subjective OMs among 42 questionnaires were: PGI-I (29%), UDI-6 (25%), ICIQ-SF (23%), IIQ-7 and KHQ, both used in 22% of articles (see Chart 1). UDI (38%) and IIQ (31%) (short and long forms) were globally the clear winners. Note that 26% of the articles used non-validated custom made questionnaires designed by the authors. The most common objective OMs were: stress test (with a variety of protocols) (65%), pad test (43%) but with a wide dispersion in standardization, and urodynamic studies (20%). The mean number of OM per trial was 2.85 for P, 2.45 in RCT and 2 in R. Most common Publishing journals were International Urogynecology Journal (35%), The Journal of Urology (11%) and Obstetrics & Gynecology tied with European Urology (5%).

Conclusion: Admittedly each OM has its pros and cons. However, to unify the field of FPMRS and allow study comparison, the top contenders could be chosen in future studies as they currently represent the most frequently used tools by the researchers in this field. Additional OMs would be welcomed in manuscripts as long as these selected few were consistently provided.
Podium #37
RADIOGRAPHIC MISDIAGNOSES AFTER PERIURETHRAL BULKING AGENTS

Natalie Gaines, MD¹; Priyanka Gupta, MD¹; Iyad S. Khourdaji, MD¹; Keval Parikh ²; Kim A. Killinger, MSN¹; Michael Ehlert, MD³; Larry T. Sirls, MD¹,²
¹Beaumont Health, Royal Oak, MI; ²Oakland University William Beaumont School of Medicine, Rochester, MI; ³Metro Urology, Minneapolis, MN
Presented By: Natalie Gaines

Introduction and Objectives: Injectable urethral bulking agents are utilized in managing stress urinary incontinence (SUI). Urological or other symptoms may prompt pelvic imaging at a later date. Radiographic findings pertaining to these injectables may be incorrectly interpreted leading to unnecessary follow-up imaging, urologic consultation or even procedures.

Methods: We identified patients that underwent periurethral injection for SUI at our institution between the years 2005 to 2015. Patient charts were reviewed for any pelvic imaging with plain X-ray (XR), computed tomography (CT), magnetic resonance imaging (MRI) or ultrasound (US) performed after their injection therapy. Radiologic reports were reviewed for any description that either alluded to the injection therapy or misdiagnosed the injections.

Results: 541 patients were identified that underwent a total of 766 injection sessions. Injections were performed with either calcium hydroxyapatite (Coaptite) or pyrolytic carbon-coated beads (Durasphere). 28 were excluded due to incorrect coding or incomplete information. 223/513 (43%) patients had no additional imaging after their injections. 214/513 (42%) patients had additional imaging but injectables were not mentioned in the reports. 76/513 (15%) patients had 109 abdominal or pelvic imaging studies, which commented on findings associated with injection therapy: 83 CT images, 7 MRI images, 14 X-ray images, and 5 ultrasound images were reviewed. In 43/109 (39%) images radiology correctly interpreted findings as associated with periurethral injection therapy. 66/109 (61%) incorrect diagnoses based on imaging included: bladder calculus (18), calcifications near urethra (23), urethral diverticulum (8), hypodense areas suspicious for abscess or soft tissue density (7), unknown nodular densities in pelvis (3), mass near bladder concerning for tumor (3), cystic structure near the urethra that may be a dilated periurethral gland (1), calcification in urethra that may be chronic inflammation (1), hypodense cystic area (1), bladder diverticulum (1).

Conclusion: Periurethral bulking agent injections are commonly misdiagnosed by radiologists as bladder calculi, urethral diverticula with or without stones, or other pelvic pathology. This occurred across different imaging modalities and reflects the lack of familiarization by radiologists with the radiologic characteristics of periurethral bulking agents.
Podium #38
ANALYSIS OF COMPLICATIONS OF PELVIC MESH REVISION SURGERY USING THE CLAVIEN–DINDO CLASSIFICATION SYSTEM
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Presented By: Andrew Rabley

Introduction and Objectives: To describe complications in patients undergoing pelvic mesh revision surgery, and to categorize their complications according to the Clavien-Dindo classification system.

Methods: We conducted an IRB approved retrospective chart review of patients who underwent pelvic mesh extraction from 2007-2014 at a single institution. 55/243 (22.6%) patients underwent pelvic organ prolapse (POP) mesh revision, 147/243 (60.1%) underwent sling mesh revision and 41/243 (16.9%) underwent combined procedures. Surgical complications were stratified using the Clavien-Dindo (C-D) system. Patients were noted to have perioperative (prior to discharge from initial surgery) or postoperative (within 90 days of the initial operation) complications. Time to resolution was also investigated. Chi squared and T-tests were performed to assess prognostic significance of age, body mass index (BMI), diabetes (DM) and smoking status.

Results: 111 of the 243 patients (45.7%) were found to have at least 1 surgical complication, with 18 patients (16.2%) suffering multiple complications. A total of 132 events met the C-D criteria for classification as a complication. Thirty five/132 (26.5%) complications were classified as Grade 1 (any deviation from normal postoperative course), 59 (44.7%) as Grade 2 (deviation requiring pharmacological intervention), 9 (6.8%) as Grade 3a (radiologic, surgical or endoscopic intervention without anesthesia), and 29 (21.9%) as Grade 3b (intervention with anesthesia). There were no Grade 4 or 5 complications. The most common 3a complications were de novo or persistent stress urinary incontinence (SUI) requiring cystoscopic examination. The most common 3b complications were persistent SUI and anterior POP requiring another surgical repair. Eight of the 132 complications were perioperative, 50% of which were C-D Grade 3b. Eighty four of 132 (63.6%) complications resolved by 90 days, 10 (7.6%) were stable, eight (6.1%) had improved, eight (6.1%) were still pending an outcome, and 22 (16.7%) were lost to follow-up. Patients with C-D complications were similar to those without when comparing age (p=0.32), BMI (p=0.99), DM (p=0.30) and smoking status (p=0.19) in our series.

Conclusion: Despite the complexity of mesh revision surgery most of the peri- and postoperative complications are minor. Using the C-D system, Grade 2 complications were most common in our large series. Age, BMI, DM, and smoking status did not increase the risk of complications.
Introduction and Objectives: Overactive bladder (OAB) is defined by bladder-centric symptoms, requiring the presence of urgency, with or without urgency incontinence, usually with frequency and nocturia. However, anecdotal observation suggested that many OAB patients also have non-urologic symptoms outside the lower urinary tract. The objectives of this case-control study are to: (1) To compare the systemic (non-urologic) symptoms between OAB patients and age-matched controls, and (2) compare the urinary symptoms, quality of life, and psychosocial measures between the two subgroups of OAB patients who had high versus low systemic symptom burden.

Methods: Patients diagnosed with OAB (n=51) and age-matched controls without OAB (n=30) were administered the Polysymptomatic, Polysyndromic Questionnaire (PSPS-Q) to assess the numbers as well as distribution of systemic symptoms across multiple organ systems. Validated instruments were administered to evaluate their urinary symptoms (ICIQ-UI, ICIQ-OAB, OAB-q, USS), quality of life (UDI-6, IIQ-7, OAB-q), and psychosocial difficulties (depression, anxiety, stress, sexual trauma, sleep, fatigue). OAB patients were divided into two subgroups (with and without widespread systemic symptoms) and their responses were compared.

Results: OAB patients reported significantly more systemic (non-urologic) symptoms compared to age-matched controls (17.5 ± 12.3 versus 6.4 ± 7.9 symptoms on the PSPS-Q, p<0.001). Differences were observed across multiple organ systems (neurological, cardiopulmonary, gastrointestinal, sexual, musculoskeletal, and gynecological, p<0.05). About a third of OAB patients (31.4%) reported widespread systemic symptoms across multiple organ systems (mean 32.0 symptoms). The presence of widespread systemic symptoms among OAB patients was correlated to worse incontinence/OAB symptoms (ICIQ-UI, OAB-q), poorer quality of life (UDI-6, IIQ-7, OAB-q), and more psychosocial difficulties (depression, anxiety, fatigue, and higher stress, p<0.05).

Conclusion: The systemic presentation suggested that in at least a subset of OAB patients, additional systemic mechanisms and pathophysiology pathways might contribute to OAB. This study highlighted the importance of understanding these systemic issues.

Funded: NIDDK
Introduction and Objectives: Here we present the final results from an extension study assessing long-term onabotulinumtoxinA treatment (3.5 years) in patients with overactive bladder syndrome (OAB).

Methods: Patients who completed either of two Phase III trials were eligible to enter a three-year extension study in which they received multiple onabotulinumtoxinA (100U) treatments. Data were analyzed for the overall population of patients who received 100U in any treatment cycle (N=829) and within discrete subgroups of patients who received exactly 1 (n=105), 2 (n=118), 3 (n=117), 4 (n=83), 5 (n=46), or 6 (n=33) treatments of the 100U dose throughout the study (n=502).

Results: Of the 829 patients enrolled, 51.7% completed the study. Discontinuations due to adverse events (AEs)/lack of efficacy were low (5.1/5.7%); other reasons were not treatment-related. Mean reductions from baseline in urinary incontinence (UI) episodes/day (week 12; co-primary endpoint) were consistent among discrete subgroups who received 1 (-3.1), 2 (-2.9, -3.2), 3 (-4.1 to -4.5), 4 (-3.4 to -3.8), 5 (-3.0 to -3.6), or 6 (-3.1 to -4.1) treatments. A consistently high proportion of patients reported improvement/great improvement on the Treatment Benefit Scale (week 12; co-primary endpoint) in the discrete subgroups across all treatments (70.0-93.5%). Median time to request retreatment was ≤6 months for 34.2%, >6-≤12 months for 37.2%, and >12 months for 28.5% of patients. Most common AE was urinary tract infection, with no changes in safety profile over time.

Conclusion: Long-term onabotulinumtoxinA treatment resulted in consistent reductions in UI and high proportions of patients reporting improvement after each treatment, with no new safety findings.

Funding by Allergan, Inc
DEFINING THE RATE AND PREDICTORS OF URINARY TRACT INFECTION AFTER BOTOX INJECTION IN PATIENTS RECEIVING PROPHYLACTIC ANTIBIOTICS
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Presented By: Juzar Jamnagerwalla

Introduction and Objectives: OnabotulinumtoxinA (Botox®) is a common and effective treatment for idiopathic detrusor overactivity. Urinary tract infections (UTIs) are a frequent complication after Botox injection. However, there is a relative paucity of data addressing the use of antibiotic prophylaxis at the time of Botox injection. We sought define the rate of UTI after Botox in patients who received prophylactic antibiotics and to identify risk factors for post injection UTI.

Methods: Retrospective data was collected over a 27-month period on patients undergoing office Botox injection at a single site. Patients with a negative pre-procedure culture were given an IM dose of a third-generation cephalosporin, and symptomatic patients with positive pre-procedure cultures were treated with the appropriate antibiotic prior to injection. Data abstracted included age, BMI, dose of Botox, number of previous Botox injections, concomitant stress incontinence, history of diabetes, pre-procedure urine culture, post-procedure urine culture, pre-procedure PVR, post-procedure PVR and retention rates. The primary outcome was post-procedure UTI rate; secondary analysis was performed using logistic regression modeling to test the association between clinical characteristics and risk of post-procedure UTI.

Results: 188 Botox injections were performed on 76 patients over the study period. The overall rate of UTI was 35.1%. There were no significant differences between age, BMI, dose of Botox, stress urinary incontinence or diabetes between patients who developed post-procedure UTIs and those who did not. On univariable analysis predictors of post-procedure UTI included both positive pre-procedure culture (31.5% for negative cultures vs. 76.9% for positive cultures, p=0.004) and previous Botox injections (30.3% for first time injections vs. 38.4% for repeat injections, p=0.009). However on multivariate analysis these associations, along with post-procedure retention and pre- and post-procedure PVR, did not reach statistical significance.

Conclusion: In our series in which all patients received pre-procedure antibiotics the rate of UTI was comparable to previous series with no standardized antibiotic prophylaxis. Patients with pre-procedure positive cultures and those undergoing repeat Botox injections may benefit from closer pre-procedure screening, broad spectrum antibiotics at the time of injection and longer post-operative duration of antibiotics.
Podium #42
LACK OF EFFICACY OF A SOMATIC-TO-AUTONOMIC INTRADURAL NERVE ANASTOMOSIS (XIAO PROCEDURE) FOR BLADDER CONTROL IN CHILDREN WITH MYELOMENINGOCELE AND LIPOMYELOMENINGOCELE: RESULTS OF A PROSPECTIVE RANDOMIZED DOUBLE BLINDED STUDY
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Presented By: Gerald Tuite

Introduction and Objectives: Xiao, et al. and other investigators have studied intradural somatic to autonomic (ex: L5 to S3/4) nerve transfers as a method to create a reflex arc to allow bladder emptying in response to cutaneous stimulation (Xiao procedure). Previous clinical studies of patients with spina bifida who have undergone the Xiao procedure have reported high success rates (70%-85%).

Methods: A randomized, prospective, double-blinded trial was initiated in March 2009, enrolling children with MM and LMM and neurogenic bladder dysfunction who were scheduled for spinal cord detethering for the usual indications. At the time of detethering, patients were randomized between two arms of the study: half of the patients underwent a standard spinal cord detethering procedure alone (DT) and half underwent detethering plus the Xiao procedure (DT + X). Patients, families and study investigators, all of whom were blinded to the surgical details, analyzed the patients' strength, sensory function, mobility, voiding and urodynamic bladder function before surgery and at regular intervals during the three-year follow-up..

Results: Twenty patients were enrolled in the study: 10 underwent only DT and the other 10 underwent DT + X. The addition of the Xiao procedure to spinal cord detethering resulted in longer operative times (p = 0.024) and a greater chance of wound infection (p = 0.03). Patients in both treatment arms could intermittently void or dribble small amounts or urine (< 20% total bladder capacity) in response to scratching in dermatomes T9 through S2, but the voiding was not reproducible and the volume voided was not clinically useful in any patient. Voiding in response to scratching was not more frequent in patients who underwent DT + X compared to those who underwent only DT. Bladder contractions in response to scratching occurred in both treatment arms at various intervals after surgery, but they were not reproducible or more frequent in patients who underwent the Xiao procedure (DT + X) compared to those who did not (DT). No patient in either treatment arm was continent of urine before, during or after the study.

Conclusion: Patients with MM and LMM who received the Xiao procedure during spinal cord detethering were no more likely to be able to void, to control their urination, to achieve continence, or to have a demonstrable urodynamic bladder contraction in response to cutaneous stimulation than patients who only underwent spinal cord detethering.
Introduction and Objectives: A post-hoc analysis examined whether response to long-term onabotulinumtoxinA treatment is consistent with response to the first onabotulinumtoxinA treatment.

Methods: Patients in a three-year extension study (following a 52-week phase 3 study) received onabotulinumtoxinA ‘as needed’ based on their request/fulfillment of prespecified criteria. This analysis includes patients who received only the approved 200U dose during the 4-year study; patients were grouped by % UI reduction after first treatment: <25% (n=23), 25-49% (n=10), 50-74% (n=23), 75-99% (n=55), and 100% (n=84). Assessments included mean % UI reduction, change from baseline in Incontinence-Quality of life (I-QOL) total score, and AEs through six treatments.

Results: 43% of patients (84/195) experienced 100% UI reduction, and 83% of patients (162/195) experienced ≥50% UI reduction after onabotulinumtoxinA treatment 1. Baseline characteristics were largely comparable across subgroups. For subgroups with mean UI reduction ≥50% after treatment 1, all subsequent treatments resulted in similar mean % UI reductions (64-93%) and consistent I-QOL improvements that were 2-3X the minimally important difference (≥11 points). Interestingly, in the 33 patients with <50% UI reduction after treatment 1, ~1/3 of these patients experienced ≥50% UI reduction with all subsequent treatments. Overall AE rates were similar across all subgroups and consistent across repeat treatments; UTI was the most common AE.

Conclusion: NDO patients with ≥50% UI reduction after their first onabotulinumtoxinA treatment experience consistent improvements in UI and QOL over 4 years of repeat treatments. A <50% UI reduction after first treatment does not necessarily predict low response with subsequent treatments.

Funded: Allergan, Inc.
Podium #44
SACRAL NEUROMODULATION THERAPY IN PATIENTS WITH NEUROLOGIC LOWER URINARY TRACT DYSFUNCTION – SHOULD IT REMAIN AN OFF LABEL INDICATION? ANALYSIS OF 80 CONSECUTIVE CASES
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Presented By: Henry Okafor

Introduction and Objectives: Although early Sacral Neuromodulation (SNM) trials excluded patients with neurologic lower urinary tract dysfunction (NLUTD), an increasing number of small studies show outcomes in these patients are similar to those without NLUTD. However, the use of SNM in NLUTD remains off label. The aim of this study was to compare SNM in patients with NLUTD to those without NLUTD and determine risk factors associated with successful utilization of SNM.

Methods: A retrospective review of patients who underwent SNM between 2011 and 2015 was completed. Patients with a neurologic diagnosis in the electronic chart were identified and placed in the NLUTD cohort. Demographic and clinical characteristics of the NLUTD and non-NLUTD cohort were identified. Rates of progression to stage 2, revision and explantation were analyzed. The data were examined using Pearson’s chi-square and Fisher exact tests as appropriate.

Results: Out of 411 patients, 80 (19.4%) had NLUTD at time of SNM with a mean age was 54 ±17 years. 75% of the NLUTD group was female (N=60). The neurogenic diagnoses were: spinal cord injury 28.8% (N=23), multiple sclerosis 23.7% (N=19), Stroke 15% (N=12), cerebral palsy 12.5% (N=10), peripheral nervous system disorders 12.5% (N=10) and Parkinson’s disease 7.5% (N=6). The primary indication for SNM in both groups was urgency incontinence - 62.5% (N=50) in the NLUTD group and 59.5% (N=197) in the NLUTD group (p=0.09). Progression to stage 2 SNM was similar in both groups, 90% in NLUTD versus 87% in non-NLUTD. Revision rates were higher in the NLUTD cohort compared to non-NLUTD, 46% versus 35%, but this trend did not reach statistical significance (p=0.09).There was a statistically significantly higher explant rate in the NLUTD group, 33% vs 20% (p=0.0194) and the most common reason for explant in both groups was loss of efficacy with no statistically significant difference between them. In the NLUTD group, for each neurologic diagnosis, the rates of progression to stage 2, revision and explantation did not differ significantly.

Conclusion: The primary indication for SNM in both NLUTD and non-NLUTD was urgency incontinence. The specific neurologic diagnosis is not predictive of SNM success, revision, or explants rates. However, in NLUTD patients appear more likely to need a device explant.
Introduction and Objectives: Traumatic spinal cord injured (TSCI) patients may suffer urologic complications. The objective of this study was to measure the incidence of specific urologic morbidities after TSCI.

Methods: This was a retrospective cohort study conducted in Ontario, Canada. All adult TSCI patients injured between April 2002 to March 2013 were included. Administrative data was used to identify our patient cohort, and to ascertain our primary outcomes (bladder reconstruction/stress incontinence surgery, urinary infections requiring emergency room visit or hospital admission, and renal dysfunction). We used adjusted survival analysis to measure the impact of lesion level on our primary outcomes. In order to assess the relative burden of our outcomes, we matched patients from the general population (1:1, matched on age, gender and geographic region) to TSCI patients and calculated risk ratios (RR).

Results: We identified 2,023 incident TSCI. The median follow-up time was 4.8 (IQR 2.5-7.7) years. Prior to their TSCI, patients had a low level of comorbidities. The majority of patients (73%) were male, and the median age was 50 (IQR 34-66) years. Lesion levels were cervical (39%), thoracolumbar (44%), and unknown (17%). Bladder reconstruction/urinary diversion was carried out on 2.4% of patients; patients with cervical lesions had a significantly higher hazard of undergoing surgery (HR 2.35, 95% CI 1.28-4.37). Urinary infections were identified among 40% of patients, of which 12.9% were associated with urosepsis. The adjusted hazard was significantly higher for urinary infections (HR 1.35, 95% CI 1.08-1.68) and urosepsis (HR 1.71, 95% CI 1.05-2.77) among thoracolumbar TSCI patients. 5.3% of the cohort experienced renal dysfunction, which was new for 78% of patients; the level of the TSCI was not significantly associated with this outcome. Compared to the general population, TSCI had a significantly increased risk of bladder reconstruction/stress incontinence surgery (RR 6.48, 95% CI 3.07-13.68), urinary infections (RR 14.91, 95% CI 12.79-17.37), and renal dysfunction (RR 1.79, 95% CI 1.31-2.45).

Conclusion: Contemporary TSCI patients continue to experience urologic morbidity and to require urologic intervention. Compared to matched people in the general population, the risk of bladder reconstruction/stress incontinence surgery and urinary infections is significantly more common, although the relative risk of renal dysfunction is low.
Podium #46
CHARACTERIZING LUT DYSFUNCTION IN MEN WITH MS: RESULTS FROM A PROSPECTIVELY MAINTAINED DATABASE FROM 2000-2015
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Presented By: Catherine Harris

Introduction and Objectives: Men represent the minority of patients with multiple sclerosis (MS) but have traditionally been considered to be at high risk for progressive lower urinary tract symptoms (LUTS) and upper tract deterioration. Overall, male MS patients are underrepresented in the literature. We sought to better characterize LUTS and urodynamic findings in men with MS at a large tertiary academic practice.

Methods: All patients with neurological conditions that presented for urologic evaluation at a tertiary referral center have been prospectively entered into a database since 2000. Patient data from men with MS including disease type and duration, bladder management, LUTS questionnaire response, surgical interventions, upper tract imaging and urodynamics (UDS) was analyzed.

Results: Of the 1069 patients in the database, 82 men with MS were identified with follow-up greater than 6 months, average 5.5 (0.6-14) years. See Table 1 for patient characteristics. The percentage of men voiding decreased from 70% to 53.2% over time with an increasing number (10% to 19%) relying on indwelling catheter. Quality of life (QOL) was stable to improved over time (4.8 decreasing to 4.3). Compliance was impaired in 7 (13%) and Detrusor Sphincter Dyssynergia (DSD) was present in 21 (38.9%) of the 54 patients undergoing UDS. Twenty-five patients required surgical intervention (30.4%), including SPT 10 (13.4%), Botox 5 (6.1%), transurethral resection of the prostate 7 (8.5%), augmentation cystoplasty 1 (1.2%), or urinary diversion 2 (2.4%). On univariate analysis, age, disease duration, disease type and UDS findings were not predictive of the need for surgical intervention.

Conclusion: In this large cohort of male patients with MS followed for over five years, many eventually required intervention beyond medical therapy. Though the percentage of patients relying on either clean intermittent catheterization (CIC) or a form of indwelling catheterization at last visit was substantially higher than baseline, upper tract deterioration was rare. Men should be counseled to maintain close urological surveillance, though traditional concerns regarding upper tract decompensation appear to be mitigated when patients are closely monitored.
Podium #47
EFFICACY AND SAFETY OF MIRABEGRON ADD-ON TREATMENT TO SOLIFENACIN IN INCONTINENT OVERACTIVE BLADDER (OAB) PATIENTS WITH AN INADEQUATE RESPONSE TO INITIAL 4-WEEK SOLIFENACIN TREATMENT
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Presented By: Scott MacDiarmid

Introduction and Objectives: Combining an antimuscarinic agent (e.g. solifenacin [SOLI]) with the β3-adrenoceptor agonist, mirabegron (MIRA) may be a beneficial pharmacotherapy for patients with OAB. This phase IIIb study assessed the efficacy and safety of SOLI 5mg in combination with MIRA 50mg (COMBN), vs monotherapy with SOLI 5mg or 10mg in incontinent OAB patients with an inadequate response to four weeks of SOLI 5mg monotherapy.

Methods: Adults with OAB symptoms for ≥3 mo entered a two-week wash-out period followed by four weeks single-blind daily SOLI 5mg. Patients still reporting ≥1 incontinence episode(s) during a three-day micturition diary were randomized (1:1:1) to daily double-blind treatment with COMBN (SOLI 5mg + MIRA 25mg, titrating to MIRA 50mg after four weeks), SOLI 5mg, or SOLI 10mg for 12 weeks. The primary efficacy endpoint was change from baseline to end of treatment (EoT) in mean number of incontinence episodes/24h. Key secondary efficacy endpoints were number of incontinence episodes during a three-day diary at EoT and change from baseline to EoT in mean number of micturitions/24h. Safety assessments included treatment-emergent adverse events (TEAEs); AEs of special interest (eg. antimuscarinic-related AEs); and change from baseline in vital signs.

Results: Randomized patients receiving ≥1 dose of study drug (SOLI 5mg, n=728; COMBN, n=725; SOLI 10mg, n=719) had similar demographics and baseline characteristics. At EoT, reductions in the primary efficacy endpoint, as well as both key secondary efficacy endpoints, were each significantly greater in COMBN vs. SOLI 5mg (all p<0.05). COMBN was non-inferior to SOLI 10mg for both key secondary endpoints, and superior to SOLI 10mg for reduction in micturitions/24h. All treatment arms were well tolerated; the AE profile for COMBN revealed no signal of new AEs. The incidence of dry mouth for COMBN was similar to SOLI 5mg and lower than SOLI 10mg. Vital signs in COMBN showed no new additive/synergistic effects.

Conclusion: Add-on treatment of MIRA 50mg is well tolerated and may provide additional benefits to incontinent OAB patients with an inadequate response to SOLI 5mg monotherapy.

Funded: Astellas Pharma
TEMPORAL SUMMATION AS AN OBJECTIVE MARKER FOR OVERACTIVE BLADDER IN WOMEN
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Presented By: Elizabeth Brown

Introduction and Objectives: Overactive bladder (OAB) pathophysiology may be related to increased afferent nerve activity and altered central nervous system processing of excitatory signals. Central sensitization, which is an induced state of spinal hypersensitivity and a well-recognized mechanism of centrally amplified pain perception underlying many chronic pain conditions, may play a role in the pathophysiology of OAB and can be indexed by measuring temporal summation (TS) or “wind-up” (i.e. an increased neuronal response to a given constant stimulus) during quantitative sensory testing (QST). The objective of the study was to compare TS of evoked thermal pain stimuli in women with and without OAB.

Methods: We recruited women with medication-refractory OAB who were electing either sacral neuromodulation or onabotulinumtoxin A to undergo QST to the forearm. During TS trials a sequence of 10 heat pulses (0.5s duration) were administered at a frequency of 0.5Hz to 47°C; the sequence was repeated for 49°C. At the peak of each pulse, subjects rated their pain intensity on a 0 – 100 scale. A standardized slope was calculated for each subject at 47°C and 49°C to reflect the degree of TS. Analyses compared study subjects with healthy controls.

Results: We included 14 women with OAB [mean age 57 years (range 31-72)] and 15 controls [mean age 34 years (range 22-55)]. The calculated average slope in controls for the TS trials at 47°C was 0.15±0.70 compared to -0.28±1.78 for women with OAB, which was not significantly different (p=0.395). The trials were repeated at 49°C resulting in a calculated average slope in controls of 0.75±0.32 and women with OAB of 1.90±1.15, suggesting the presence of TS at higher temperatures in women with OAB (p<0.001).

Conclusion: In this pilot study, we identified women with OAB that demonstrated heightened TS on QST compared to controls, suggesting a role for central sensitization in OAB pathophysiology in women. Further study will elucidate the use of TS as an objective marker for OAB treatment outcomes.
Introduction and Objectives: To characterize women’s urinary tract infection (UTI) symptoms at two different time points using a validated questionnaire. To assess possible inefficiencies of the current standard urine culture and its effect on patient care.

Methods: IRB approved prospective study enrolled urogynecologic patients (2014-15) and dichotomized them based on their perception of the presence of a current UTI (YES/NO). Both groups also rated the severity and bothersome nature of 7 classic UTI symptoms. The YES group was later contacted to complete a follow-up UTISA survey. Each participant’s catheterized urine sample was processed with the standard culture (SC) method, as well an expanded quantitative urine culture (EQUC) method. Bacterial identification was performed through the use of MALDI-TOF mass spectrometry.

Results: The women in the YES (n=40) and NO (n=75) groups differed only by their average ages (p=0.042). Most (87.5%) women in the YES group were White with an average age of 64 (±16) years and an average body mass index (BMI) of 31 (±7). The YES group was not currently taking antibiotics (95%), anticholinergics (78%) or using vaginal estrogen (78%). Dysuria, urinary frequency and urgency were the most common pre-questionnaire responses to what made the YES group believe they had a UTI. 65% of women in the YES group (26/40) completed the UTISA post-questionnaire. Women with a positive standard urine culture [60.0% (24/40)] were evaluated clinically and the majority [83.3% (20/24)] was treated with antibiotics. EQUC was always positive when the SC grew a microbe (N=24 SC+/EQUC+). EQUC detected uropathogens in 87.5% (35/40) of the urine samples, 27.5% (11/40) were SC negative (SC-/EQUC+, false negative group). Out of the 11 women that were SC-/EQUC+, only one was treated with antibiotics. 54.2% (13/24) of the SC+/EQUC+ and 81.8% (9/11) of the SC-/EQUC+ women completed the post-op questionnaire. A higher proportion of the SC-/EQUC+ women [66.7% (6/9)] reported the same or worsening UTI symptoms compared to the SC+/EQUC+ women [38.5% (5/13)].

Conclusion: For most women who felt they had a UTI, EQUC more often detected a uropathogen than did SC. UTI symptom (severity and bother) improved after treatment with an antibiotic. Importantly, women who were SC-negative but EQUC-positive were not treated with antibiotics despite having a uropathogen. These women frequently had no symptom improvement or became worse.
SPECIFIC URINARY TRACT INFECTION SYMPTOMS IN WOMEN RELATE TO URINARY ORGANISMS

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Presented By: Tanaka Dune

Introduction and Objectives: To relate uropathogens to classic symptoms of urinary tract infection.

Methods: This IRB approved prospective study enrolled urogynecologic patients (2014-15) and dichotomized them based on their perception of the presence of a current UTI (Yes/No). Both groups rated the severity and bothersome nature of 7 classic UTI symptoms. Each participant’s catheterized urine sample was processed with the standard culture (SC) method, as well an expanded quantitative urine culture (EQUC) method. Bacterial identification was performed through the use of MALDI-TOF mass spectrometry. Median UTI symptom severity and bother scores, combined for each of the 7 symptoms were compared. Wilcoxon rank sum test and independent t-tests were used to assess medians and means respectively, with a p≤0.05 considered significant. Means are reported ± standard deviation.

Results: Most (80.9%) of the cohort was Caucasian; the average age was 62 (±13) years and the average body mass index (BMI) was 30 (± 6) units. The YES group (n=40) was significantly older than the NO group (n=75, p=0.042). Current antibiotic use (p=0.051) and sexual status (p=0.058) trended towards statistical significance. Women in the YES group had significantly higher median symptom scores: frequency (5 vs. 2, p=0.008), urgency (4.5 vs. 2, p =0.001) of urination, pain or burning when passing urine (4 vs. 0, p=0.000) and pressure in the lower abdomen or pelvic area (2 vs. 0, p=0.001). Fig. 1 shows the degree of association between the EQUC-cultured uropathogens (from all 115 patients) and the four UTI symptom domains, where a value of 1 represents a high association of culturing that uropathogen when the corresponding symptom is reported, regardless of the degree of symptom intensity. The majority of uropathogens clustered around symptoms of urinary frequency and urgency. Corynebacterium riegelii, Citrobacter koseri, Candida parapsilosis and Pseudomonas aeruginosa were the only microbes associated with all four-symptom domains.

Conclusion: Each EQUC-cultured uropathogen had a unique symptom association pattern. In general, most uropathogens caused symptoms relating to urination regularity, while few resulted in hematuria.
Introduction and Objectives: There is currently no gold standard to follow patients post urethroplasty. Stricture recurrence rates remain low, however, predictive factors for failure must be defined. Our objective was to assess the predictive value of routine post-operative voiding cystourethrogram (VCUG) on stricture recurrence after urethroplasty.

Methods: We performed a retrospective chart review of 288 patients with penile or bulbar strictures undergoing urethroplasty at a single institution between 2000-2014. All patients underwent routine post-operative VCUG at 1-3 weeks following urethroplasty. Recurrence was defined as any need for subsequent procedural intervention. Abnormal VCUG was defined as evidence of extravasation or early stricture recurrence.

Results: Mean age at surgery was 47 years and the mean post-operative follow-up period was eight months. The overall stricture recurrence rate was 11% (n=32). Within the entire cohort, 27 patients had an abnormal VCUG and 261 were normal. There was a higher rate of stricture recurrence among the patients with an abnormal VCUG (26%) versus a normal VCUG (10%); p <0.05. Sub-group analysis of bulbar strictures by type of urethroplasty demonstrated no significant difference in stricture recurrence rate between normal or abnormal VCUG (13% and 14% respectively) in all patients who had an anastomotic urethroplasty (n=53). There was, however, a very significant increase (8% versus 50%) in stricture recurrence rate by VCUG result (normal versus abnormal) among bulbar buccal graft repairs (n = 139, p <0.05).

Conclusion: Abnormal post-operative VCUG portends an approximately three-fold increased risk of stricture recurrence overall. When stratified by type of urethroplasty, however, VCUG only predicted failure among buccal graft urethroplasties. As such, VCUG after buccal graft urethroplasties may be a useful adjunct predictor of long term failure and can be used to modify follow-up schemes and patient counseling.
Poster #M52
FEMALE URETHRAL DIVERTICULA: HOW DO MRI FINDINGS CORRELATE WITH PRE-OPERATIVE SIGNS AND SYMPTOMS OR POST-OPERATIVE OUTCOMES?
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Presented By: Nima Baradaran

Introduction and Objectives: Pelvic MRI (pMRI) provides excellent anatomic delineation of urethral diverticula (UD) and is routinely utilized for preoperative planning and patient counselling. Whether preoperative MRI findings have any predictive or prognostic value in relation to the severity of the condition or postoperative success is the objective of this study.

Methods: After IRB approval, records of adult females who underwent transvaginal excision of UD at our institution between 2004 and 2014 were retrospectively reviewed. Clinical characteristics including lower urinary tract symptoms, incontinence status, dyspareunia, postvoid dribbling, and urinary tract infections were reviewed and correlated with pMRI findings before and after repair. MRI characteristics included UD configuration (simple, saddle, or circumferential), size, location (proximal, mid, or distal urethra), and number of UD. An autologous fascia pubovaginal sling was placed at the time of UD excision if stress urinary incontinence (SUI) was present preoperatively.

Results: A total of 54 patients underwent transvaginal repair of UD of which 45 patients had available data on preoperative pMRI. UD was located in the proximal urethra in 32%, midurethral in 50%, and distal urethra in 10%. Three (8%) patients had panurethral involvement. Median (range) size of the UD on largest dimension was 2.5cm (0.5-6.7cm). UD configuration was noted to be simple in 30%, saddle bag in 45%, and circumferential in 25% of patients. There was no statistically significant correlation between UD characteristics on pMRI and presenting signs and symptoms. Larger UD size (>3 cm) was associated with a statistically significant higher intraoperative blood loss (450cc vs. 200cc, p<0.001) as was placement of a concomitant sling at the time of diverticulectomy (275cc vs. 200cc, p=0.03). Neither configuration nor location of UD was statistically significantly predictive of symptom severity or blood loss. Complete radiographic resolution of UD was achieved postoperatively in 65% of patients however there was no correlation with preoperative pMRI and resolution of UD on postoperative imaging.

Conclusion: Although pMRI provides valuable anatomical information for surgical planning, preoperative pMRI findings are not predictive for patients' presenting symptomatology, signs, or postoperative outcomes.
THE MEDIUM TERM OUTCOMES OF STOMA FORMATION FOR PATIENTS UNDERGOING CONDUIT DIVERSION FOR FUNCTIONAL AETIOLOGY: 5-YEAR FOLLOW-UP  
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Presented By: Osman Kose

Introduction and Objectives: Ileal conduit stoma formation has been considered the simplest urinary diversion procedure, most commonly employed after extirpative cancer treatment when surgery is inevitable. In contrast, urinary diversion is an end-stage choice in the treatment of intractable incontinence and bladder pain syndrome after multiple reconstructive procedures. In this study, we scrutinized the medium-term stomal and para-stomal complications in patients undergoing ileal conduit urinary diversion for functional indications in a tertiary centre.

Methods: We analyzed the charts of 75 consecutive patients with a mean age of 56 years (range 23 to 83) who underwent conduit diversion between 2007 and 2014. Open conduit diversion was performed by three specialist surgeons. Mean follow up was 5.3 years (range 1 to 7). Patient demographics, indications for an ileal conduit and long-term complications, in particular further interventions for parastomal/incisional herniae, stomal retraction, ureterointestinal anastomotic strictures or pyocystis were evaluated.

Results: The main indications for an ileal conduit were neurogenic bladder in 37 patients (49%), bladder pain syndrome in 16 (21%), stress and mixed urinary incontinence in seven (9%), overactive bladder and cystoplasty in eight (11%), vesicovaginal fistula in five (7%) and Fowler’s syndrome in two (3%). Patients had average 4.3 (range 1 to 8) procedures prior to diversion. Outcomes are summarized on Table 1. 45 patients (59%) have not required further intervention for their conduit. 17 (57%) of 30 patients who required re-operation had neurogenic bladder. Seven patients (9%) required more than one reoperation for conduit problems. 22 patients had conduit formation with concomitant cystectomy. 9 of 53 patients (17%) who had a diversion alone ultimately required a cystectomy for pyocystis.

Conclusion: Contrary to the perception that ileal conduit is a simple and permanent solution to functional disorder, re-intervention rates are high and patients must be carefully counseled of risks and alternatives prior to this intervention.
Introduction and Objectives: Although infrequent, when encountered vesicovaginal fistulas (VVFs) are a difficult condition for both patients and physicians alike. In developed countries, the most common cause of VVF is iatrogenic, the incidence of which is approximately 0.1-0.3% after hysterectomy. After the first robotic repair was described in 2005, this has been an increasingly common treatment modality. At our institution, between 2009 and 2014, 11 of these patients were encountered and treated with robotic reconstruction. However Tisseel fibrin sealant was used in place of the traditional tissue interposition. We attempt to describe our experience below.

Methods: After IRB approval was obtained, a retrospective study was undertaken to identify patients who had VVF. Inclusion criteria were operative repair utilizing the da Vinci robotic system. There were no exclusion criteria. Charts were reviewed and patient demographic data, operative time, complications, and follow up information were analyzed. In each patient, a robot assisted laparoscopic approach was utilized, and Tisseel fibrin sealant was used in lieu of tissue interposition.

Results: We identified 11 patients aged 31-50 years old. Five of these patients had undergone at least one previous operation to repair the VVF. Of note, none of the patients were status-post radiation therapy. The mean operative time for repair was 223.9 minutes. Mean estimated blood loss was 28.1 cc, length of stay was 1.4 days, and duration of urethral catheterization was 10.9 days. A cystogram was performed on every patient without evidence of urinary extravasation or persistent fistula. Mean duration of follow up was 32.1 days. The most common complication was urinary tract infection, which occurred in three patients. One patient also developed septic pelvic thrombophlebitis in the postoperative period.

Conclusion: To date, there are only a small number of case series describing robotic repair of VVF. In the vast majority of these reports however, to separate the suture lines of the vagina and bladder, interposition of either omentum, epiploic appendages of the sigmoid colon, or peritoneal flaps are used. In our series, use of fibrin sealant obviated the need for tissue transfer or use of a flap and appears to be safe and feasible, as evidenced by our 100% success rate. Additionally, this operation seems to be a reasonable option for those who have failed previous repair of VVF.
DURABILITY OF REVISION SURGERY FOR STENOSIS OF CATHETERIZABLE CHANNELS IN ADULTS
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Presented By: Daniel Liberman

Introduction and Objectives: The effectiveness and complications of catheterizable channel revision have not been well described within the current literature, especially in adults. We sought to describe the strategies of surgical revision for catheterizable channel stenosis and their outcomes, including restenosis and new stomal incontinence.

Methods: We retrospectively queried the charts of adults who underwent catheterizable channel revision or replacement from 2000 to 2014 for stomal stenosis, channel stenosis, or difficulty with catheterization at the Universities of Minnesota, Michigan and Utah. The primary endpoint was channel patency as measured by freedom from repeat surgical intervention. Secondary endpoints included post revision incontinence and complication rates. Revision surgeries were classified by strategy into “above fascia,” “below fascia,” and “channel replacement” groupings.

Results: 57 patients (age 12 to 82 years old; mean 42) were identified who met our inclusion criteria. Channel patency was achieved in 65% at a median 34 months post-revision for all repair types. There was no difference in patency by the type of channel being revised. Overall, any degree of incontinence occurred in 39% and moderate to severe incontinence in 12.5%.

Conclusion: The type of channel being revised was strongly associated (p=0.001) with any post-operative stomal incontinence. Surgical complications occurred in 28% of all revision procedures though the majority was low grade.
Poster #M56
FACTORs ASSOCIATED WITH PESSARY DISCONTINUATION: A RETROSPECTIVE REVIEW
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Presented By: Yoko Takashima

Introduction and Objectives: There is limited information regarding factors associated with discontinuation of pessaries in a predominantly underserved Hispanic/Latina population. Our primary outcome was the rate of discontinuation of pessary use. Secondary outcomes included factors associated with discontinuation, rates of side effects, and rates of loss to follow up.

Methods: This was a retrospective chart review of new patients who desired a pessary for uterovaginal prolapse seen in the LAC+USC Urogynecology clinic between 6/2013 and 2/2015. Data was analyzed using descriptive statistics and Student's t test, Mann Whitney U, and Chi square analysis as appropriate.

Results: 105 new patients were seen who desired a pessary. The mean [standard deviation (SD)] age was 56.4 (10.0) years. 90 (85.7%) were Hispanic/Latina. Median (range) POPQ point C and Ba were +1 (-8 - +9) and +3 (-2 - +8) cm, respectively. Five (4.8%) women did not return for any follow up visits. 18 (17.1%) women only had one follow up visit. 100 women returned for at least one follow up visit at a median (range) of 14 (2-200) days. Of the 100 women, 44 discontinued the pessary by their last clinic visit: 19 women discontinued the pessary because they choose to have surgery, 11 women discontinued the pessary because it fell out, 10 women discontinued the pessary for pain/discomfort, 2 women had urinary incontinence, one woman had urinary retention, and one woman discontinued the pessary following a cervical conization. Women who continued the pessary were significantly older than women who discontinued the pessary [mean age (SD) 58.0 (8.7) vs. 54.0 (11.3) years, p = 0.048]. There was no difference in parity, BMI, prolapse stage, history of hysterectomy, menopausal status, or urinary incontinence between the two groups. Fifty-three women were able to remove and replace the pessary; women who continued the pessary were significantly more likely to be able to care for the pessary [41 (73.2%) vs. 12 (27.3%), p < 0.001]. Women who continued the pessary were more likely to have a pessary related problem; this did not reach statistical significance [39 (69.6%) vs. 23 (52.3%), p =0.076]. Median (range) follow up for women who continued the pessary was 190 (6-825) days.

Conclusion: In our patient population, 44% of women discontinued the pessary; women who discontinued using a pessary were younger and less likely to care for the pessary themselves. Of women who continued the pessary, about 70% of them had a related side effect.
Poster #M57
COMPARISON OF ONE-YEAR OUTCOMES FOR SACROSPINOUS HYSTEROPEXY AUGMENTED WITH POLYPROPYLENE MESH AND HUMAN DERMAL GRAFT: AN AMBIDIRECTIONAL COHORT STUDY
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Presented By: Shilpa Iyer

Introduction and Objectives: The objective was to determine whether one-year anatomic results were similar between sacrospinous hysteropexy augmented with polypropylene mesh and sacrospinous hysteropexy augmented with human dermal graft.

Methods: This was an ambidirectional cohort study of vaginal sacrospinous hysteropexy augmented with either polypropylene mesh (Uphold™) or human dermal graft (Axis™ or Repliform™) between January 2007 and June 2015 at a tertiary care Urogynecology practice. All patients had preoperative prolapse with POPQ>Stage 2 and were English speaking. Patients were excluded if they had prior prolapse surgery or history of uterine or cervical pathology. IRB was received. A retrospective chart review was performed of all charts from January 1, 2007 through April 1, 2014. Subjects were prospectively enrolled at their one-year follow up from April 1, 2014-2015. Subjects were prospectively enrolled prior to surgery from April 1, 2014 through June 1, 2014 and followed for one year. Preoperative exam and PFDI, urodynamics, operative reports and one year postoperative exam and questionnaires were collected on all patients.

Results: There were 274 patients who returned for their one-year postoperative exam: 43 subjects who had dermal grafts (of 45) and 231 subjects who had mesh grafts (of 247). Demographics were similar except for age. The mesh group was older compared to the dermal group. Preoperative quality of life questionnaires as measured by the PFDI were similar between groups. When failure was defined as POPQ≥Stage 2 there were fewer failures in the mesh group than the dermal group at 1 year (18% vs 29%, p=0.03). When failure was defined as the feeling of a bulge (PFDI-3 response 1,2,3,4) there were fewer failures in the mesh group than the dermal group (4.5% vs 20.9%, p<0.0001). The exposure rate was 5.75% (13/247) in the mesh group. Reoperation rate was 4.3% (9/247) in the mesh group and 7.3% (3/45) in the dermal group (p=0.2).

Conclusion: There were fewer anatomic failures (defined as POPQ≥Stage 2) in the hysteropexy mesh group than the hysteropexy dermal group at one year (18% vs 29%, p=0.03). Regarding subjective satisfaction hysteropexy augmented with polypropylene mesh had superior result with less patients feeling a bulge at one year than the dermal hysteropexy group (4.5% vs 20.9%, p=0.0001). These findings need to be weighed against the known risks of vaginal mesh and the exposure rate of 5.75% in the hysteropexy mesh group.
**TRANSVAGINAL MESH INCREASES THE RISK OF BLEEDING AND ORGAN SURGICAL SITE INFECTION IN VAGINAL PELVIC RECONSTRUCTION SURGERY: RESULTS FROM A MULTI-INSTITUTIONAL PROSPECTIVELY MAINTAINED DATASET**

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Presented By: Majid Mirzazadeh

**Introduction and Objectives:** Vaginal reconstructive surgery can be performed with or without mesh based on surgeon preference. To elucidate small differences in perioperative morbidity following vaginal reconstructive procedures, we elected to look at a national dataset to determine whether using mesh during vaginal pelvic reconstruction surgery impacts rates of various perioperative complications and readmission.

**Methods:** Using the National Surgical Quality Improvement Program (NSQIP) database we concatenated surgical data from multiple vaginal procedures, including anterior and posterior colporrhaphy, paravaginal defect repair, enterocele repair, and colpopexy using CPT coding. We stratified this data by the modifier associated with mesh usage at the time of the procedure. In measuring multiple covariates, we compared various 30-day perioperative outcomes, postoperative complications, and readmission rates.

**Results:** We identified 5644 procedures without mesh and 1280 procedures using mesh in the NSQIP dataset from 2010 through 2012. Procedures using mesh had a higher rate of perioperative bleeding requiring transfusion than procedures not using mesh (2.11% vs 0.60%, p < 0.001). In the 27 cases using mesh that required blood transfusion, seven transfusions occurred the same day of surgery and 10 occurred on the first post-operative day. Procedures using mesh also had a higher rate of organ surgical site infection (0.55% vs 0.18%, p < 0.05). There were no significant differences in rates of readmission, superficial or deep surgical site infections, pneumonia, urinary tract infection, sepsis, pulmonary embolism, or renal failure. The data set does not capture surgeon or site specific complications or type of kits/trocars used with the mesh.

**Conclusion:** In a review of NSQIP data, vaginal pelvic reconstruction procedures using mesh have a higher rate of perioperative bleeding requiring transfusion and organ surgical site infection than procedures not using mesh. Patients undergoing these procedures should be counselled preoperatively concerning these risks.
INTRODUCTION AND OBJECTIVES: There is controversy regarding performing anti-incontinence procedures at the time of pelvic organ prolapse (POP) repair. Data supports improvement in stress urinary incontinence (SUI) outcomes with a concomitant sling, with an increased risk of adverse events. At our institution, we use a shared decision model to educate and counsel patients. In order to minimize the risk of post-operative SUI, we recommend concomitant anti-incontinence procedures to patients with the complaint of SUI. For patients undergoing POP repair without subjective SUI, we discuss the risk of de novo SUI and offer evaluation for occult stress urinary incontinence (OSUI) with urodynamics (UDS) and/or a home pessary trial. For patients with OSUI, we recommend concomitant anti-incontinence procedure. Ultimately, the patient makes the final decision whether or not to have a concomitant anti-incontinence procedure based on risks and benefits. With this constant management paradigm, we assessed trends in preoperative SUI evaluation, concomitant anti-incontinence procedures at POP surgery, and post-operative anti-incontinence procedures at our institution before and after the 2011 FDA Safety Communication for vaginal mesh.

METHODS: A retrospective review was performed on patients who underwent POP surgery from June 2010 through October 2014. Preoperative workup included assessment of subjective SUI and/or evaluation for OSUI with reduction of POP on physical exam, urodynamics or/and pessary trial. Rates of concomitant anti-incontinence procedures at POP repair and post-operative anti-incontinence procedures within one year after surgery were compared prior to and after the 2011 FDA communication.

RESULTS: 547 women underwent POP repair. The percentage of concomitant anti-incontinence procedures at POP repair decreased from 51.9% to 36.0% after the FDA communication (p = 0.01), while the rates of pre-operative objective SUI/OSUI on exam, urodynamics and pessary trials remained constant. The rate of postoperative anti-incontinence procedures within one year of the index surgery remained low.

CONCLUSION: We found a decrease in rates of concomitant anti-incontinence procedures at POP repair following the 2011 FDA communication in the setting of a constant shared decision making algorithm. The rates of subjective SUI or demonstrable SUI on preoperative evaluation remained stable, indicating that patient preferences have been affected by the FDA communication.
Poster #M60
SEXUAL FUNCTION IN PATIENTS UNDERGOING POSTERIOR COMPARTMENT REPAIR COMPARED TO THOSE UNDERGOING ANTERIOR OR APICAL REPAIRS
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Presented By: Priyanka Gupta

Introduction and Objectives: Studies have reported increased dyspareunia in patients that undergo transvaginal posterior compartment pelvic organ prolapse repair. In this study we compare sexual function in patients with posterior repairs compared to other compartments at one year after transvaginal prolapse repair.

Methods: Women from our prospective, longitudinal prolapse database that had transvaginal repair of POP between 12/19/2008 through 6/4/2014 were reviewed. Patients were divided into two cohorts: those that had posterior compartment repair (either alone or concomitantly) and those who had anterior +/- apical compartment repair without posterior repair. Patients were assessed with the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) pre- and post-operatively at six months and one year. Data were analyzed with Pearson’s Chi square, Fisher’s Exact, Wilcoxon rank sum tests, and repeated measures.

Results: 130 women were identified. 50 women had a posterior repair (PR+). 28 were combined with anterior +/- apical repair, and 22 only had a posterior repair. 80 women had anterior +/- apical repair without posterior repair (PR-). There was no significant difference in mean age (PR+ 63, PR- 64 years, p=0.66) or placement of transvaginal mesh (PR+ 56%, PR- 73%). Being sexually active at baseline was similar (PR+ 48%, PR- 50%) and remained similar at 6 months (PR+ 52%, PR- 57%) and one year (PR+ 53%, PR- 47%). Answers to PISQ question #5 showed that dyspareunia was not different at baseline (PR+ 23%, PR- 10%, p = 0.26), 6 months (PR+ 12% PR- 13%, p = 1.0), or 1 year (PR+ 12%, PR - 17%, p = 1.0). Baseline PISQ scores were similar and remained so at six months and one year (Table 1). PISQ scores improved significantly in both groups over time (PR+ p=0.0013, PR- p=0.0014).

Conclusion: At six-month and one-year follow ups, women with posterior compartment repair have similar rates of being sexually active, dyspareunia, and similar improvement in PISQ scores as women with anterior +/- apical compartment repairs.

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Poster #M61
POST-SURGICAL TELEPHONE SURVEILLANCE IN GLOBAL HEALTH MISSION WORK
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Presented By: David Rapp

Introduction and Objectives: Post-surgical follow-up in global health missions is often difficult. Even given collaboration with in-country health care practitioners, post-operative evaluation by visiting surgical specialists is important to assess outcomes and address potential adverse events. This is particularly important when providing urogynecological care as developing countries may lack significant exposure to this subspecialty. Based on experience suggesting telephone interview as an effective method of reaching surgical patients, we performed a pilot program to standardize post-operative interviews with visiting physicians.

Methods: Surgeries were performed in Belize over three separate trips by a visiting urogynecological team between April, 2014 and May, 2015. All patients were provided a discharge packet, including a specific date and time for six-week post-operative telephone interview with visiting physician located in the US. Patients were also provided with access to free telephone minutes to minimize cost and facilitate compliance.

Results: Thirty-five patients undergoing surgery participated in this initial experience. Eighteen (51%) patients were compliant with telephone interview at the specified time. Average length of telephone interview was eight minutes. Three (17%) of 18 patients reported post-operative issues that were resolved by visiting physician assistance. Program costs for telephone minutes comprised $175 (USD). Local health care specialists were able to subsequently achieve follow-up with all but six patients. Three of these six patients were then located via new telephone numbers, provided by secondary contact information obtained during surgical triage (92% total post-operative compliance).

Conclusion: Our program achieved successful follow-up of approximately one half of surgical patients, allowing for more detailed outcome assessment. This system also alerted physicians to a minority of patients who needed further post-operative assistance or medical evaluation. Optimization of follow-up during international health missions remains difficult and is important to address adverse events and assess outcomes. Further development of this program is ongoing.
Poster #M62
CLINICAL OUTCOMES AFTER OPERATIVE MANAGEMENT OF COMPLICATIONS RESULTING FROM TRANSVAGINAL MESH FOR PELVIC ORGAN PROLAPSE
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Presented By: Junchan Yune

Introduction and Objectives: There is paucity in the literature regarding the outcomes after surgical removal or revision of mesh. Most current studies are based on retrospective chart reviews and use subjective measures without standardized questionnaires. The purpose of this prospective study is to describe the outcomes of vaginal mesh removal using standardized, validated questionnaires before and after surgery.

Methods: A prospective study was conducted among female patients who are undergoing removal of vaginal mesh. All the patients were referred to our tertiary care center with various indications. The study period was between January 2013 and May 2014. Demographics, medical history, previous surgical history, and presenting symptoms were obtained. The surgery was performed vaginally for complete removal of mesh. Pre- and postoperative assessment included standard questionnaires with PFDI-20 (POPDI-6, CRAID-8, UDI-6), PFIQ-7, PISQ-12, PHQ-9, and pain scale. And PGIC (Patient Global Impression of Change) was used as a primary outcome.

Results: Twenty patients participated during the study period and two patients were lost to follow up. Their mean age was 62.3 years (range 43-78), with a mean follow-up of nine months (range 3-22) from mesh removal surgery. All subjects reported vaginal pain as one of the chief complaints and denied history of chronic pelvic pain before mesh placement. Other presenting symptoms include overactive bladder (OAB), urinary retention, and recurrent pelvic organ prolapse (POP). After mesh removal, half of the patients (n=9) had a significant improvement (“better” or “a great deal better” on PGIC), whereas five (27%) had “no change” or “almost the same” on PGIC. Pain improved significantly (p=0.01) with complete resolution in eight (44%) patients. When quality of life and symptoms scores were compared before and after surgery, Pelvic Organ Prolapse Impact Questionnaire (POPIQ-7) scores showed statistically significant improvement (Table1).

Conclusion: A quarter of patients reported no overall improvement after vaginal mesh removal. However, for the majority of patients surgery appears to be effective in improving presenting symptoms with significant improvement in quality of life from vaginal and pelvic symptoms.
Symptoms of urgency, frequency, overactive bladder wet and nocturia can be cured by pelvic floor surgery using Elevate anterior/apical and Elevate posterior/apical

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Presented by: Bernhard Liedl

Introduction and Objectives: The Integral theory states that urgency and nocturia can be caused by looseness of connective tissue at different zones of the pelvic floor by activating stretch receptors at the bladder base which may “fire off” at a lower hydrostatic pressure (smaller volume) and the cortex interprets this as urgency. The objective was to analyze if pelvic floor reconstruction with Elevate anterior/apical and Elevate posterior/apical improves symptoms of frequency, urgency, overactive bladder wet and nocturia in the longterm.

Methods: In a prospective multicentre study (10 US & 6 EU, IRB/EC approved protocol and ICF) 277 women had surgical reconstruction with Elevate posterior/apical (N = 135) or Elevate anterior/apical (N = 142) for anterior or posterior prolapse stage II – IV (POP-Q) with or without vault/uterine prolapse. These patients could be followed over 2 years and answered the questions of the Pelvic Floor Disorder Inventory (PVDI) Nr 17 (frequency), 18 (urgency), 19 (overactive bladder wet) and 27 (nocturia) at baseline, six months, 12 months and 24 months after surgery.

Results: 68.4% (question 17), 64.8% (question 18), 57.3% (question 19) and 69% (question 27) of the patients had somewhat, moderately or quite a bit bothering symptoms. About 50% of these patients were symptomfree after 6, 12 and 24 months (p < 0.001). Those with quite a bit bothering symptoms (all questions) in about 80% were improved/cured (p < 0.001) after six, 12 and 24 months. Rectocele repair as well as cystoceles and apical prolapse repair had similar cure rates.

Conclusion: Symptoms of frequency, urgency, overactive bladder wet and nocturia can significantly be improved by pelvic floor surgery at different zones (cystoceles, rectoceles, apical descent) of the pelvic floor. The effects were long lasting over at least 24 months. These results give more evidence that in women many symptoms of overactive bladder and nocturia are caused by vaginal prolapse and that these women in a high percentage can be cured surgically, especially those with severe symptoms in up to 80%.
Poster #M64
A RETROSPECTIVE COMPARISON OF DYSPAREUNIA AND MESH EXPOSURE OUTCOMES FOR PATIENTS WHO HAVE UNDERGONE GYNEMESH (PROLIFT) AND NOVASILK (EXAIR) FOR TREATMENT OF PELVIC ORGAN PROLAPSE (POP)
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The Institute for Female Pelvic Medicine and Reconstructive Surgery
Presented By: Angel Gonzalez Rios

Introduction and Objectives: The 2011 FDA safety notification regarding complications from transvaginal mesh (TVM) surgery for the correction of POP was based on 1,503 reports received over a 3 year period, and stated that the complications were “not rare”. They specifically expressed concern regarding the risk of mesh erosion. A systematic review noted this complication in 10% of patients within 12 months of surgery. Another complication associated with TVM was de novo dyspareunia. We previously reported our experience in over 1,000 patients undergoing TVM surgery using the PROLIFT system demonstrating a 2.9 % vaginal exposure rate and 11.9 % rate of de novo dyspareunia. PROLIFT has been withdrawn from the market. This objective was to investigate the prevalence of the concerning outcomes in another TVM delivery system (EXAIR) using a lower mesh density, mesh body and arm orientation than PROLIFT.

Methods: This is a retrospective review of all patients who underwent TVM surgery using EXAIR for the correction of POP from June 2012 to August 2014 at our institution. Questionnaires including the short-forms of the Pelvic Floor Distress Inventory (PFDI), the Pelvic Floor Impact (PFIQ), the POP/Urinary Incontinence Sexual Function (PISQ), and Surgical Satisfaction (SSQ) were administered at their 12 month post-operative visit.

Results: 180 patients underwent TVM surgery for POP during this time frame. 107 (59.4%) returned for one year follow up. The mean age and BMI were 68.3 years and 27.9 respectively. 43(40.2%) were sexually active at the time of surgery; 34 answered the PISQ-12 pre-surgery and 12 month post-operatively. 3/34 patients(8.8 %) had de novo dyspareunia. 4/34 patients(11.8%) had an improvement of dyspareunia. 81(75.6%) patients answered the (SSQ) at one year. 74(91.4%) reported being satisfied and 3/81 patients(3.7%) were unsatisfied. The mesh exposure rate at one year was 0% in all 107 patients. The composite success (no anatomic or subjective failure) was 90%.

Conclusion: Our results show that the use of EXAIR system for TVM surgery appears to be safe and effective with acceptable failure. We demonstrated a 0% exposure rate at one year, better than our previously reported rate using PROLIFT. The rate of de novo dyspareunia was improved as well. We attribute this outcome to the improvements in the surgical technique over the years in this high volume urogynecologic practice.
**Poster #NM94**

THE EFFECT OF VAGINAL ESTROGEN ON THE EXTRACELLULAR MATRIX IN WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE

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Presented By: Cantey Hattink

**Introduction and Objectives:** Pelvic organ prolapse is a common cause of morbidity among women in the United States. The extracellular matrix plays an important role in pelvic support. Vaginal estrogen has been shown to increase vaginal stiffness, but little is known about the effect of local estrogen on elastin metabolism or on the ratio of collagen to elastin (C/E ratio) in prolapsed vaginal tissue. We hypothesized that preoperative vaginal estrogen would increase collagen and elastin content as well as the C/E ratio in the muscularis layer of women with prolapse.

**Methods:** In this prospective pilot study, 11 postmenopausal women with posterior vaginal prolapse (POPQ ≥ stage 2) undergoing surgical repair were recruited: Five women being treated with topical vaginal estrogen for a minimum of six weeks at the time of surgery and six postmenopausal women without vaginal estrogen therapy within six weeks of surgery. Women with recent genitourinary infection, who have used systemic hormones within three months or who have autoimmune disease, pelvic malignancy, or connective tissue disorder were excluded. Full thickness posterior vaginal wall biopsies were obtained at the time of surgery. Portions of the specimen were fixed, paraffin embedded and sectioned for histology. In the remainder of the specimen, the mucosal layer was removed from the muscularis, which was utilized for western blotting, protease activity assays, and to assess collagen and elastin content. Groups were compared using t-test or Chi-square test with a 95% confidence interval.

**Results:** There were no significant differences in age, ethnicity, parity, BMI, or prolapse stage between the two groups. There was similar elastin content in the estrogen and control groups (170.6 vs. 180.6 mcg/mg; p=0.44). Conversely, there was more total collagen in muscularis from the estrogen treated tissue compared to the controls (93.7 vs. 46.3 mcg/mg; p=0.01). On stained sections, the vaginal mucosa appears thicker in tissue from the estrogen group compared to controls. The C/E ratio was significantly greater in the estrogen group compared to controls (2.46 vs. 1.32; p=0.04). There was no difference in elastase activity between the two groups (3.19 vs. 6.50 U/mcg; p=0.15).

**Conclusion:** The increased collagen without a concomitant rise in elastin in vaginal tissue treated with topical estrogen suggests a mechanism for wall stiffening that has been observed in women with prolapse on hormone replacement therapy.
EARLY EXPERIENCE WITH ROBOTIC-ASSISTED LAPAROSCOPIC SACROCOLPOPEXY (RALS) WITH ALLOGRAFT FASCIA LATA IN PATIENTS WITH PRIOR MESH COMPLICATIONS
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Presented By: Tamara Lhungay

Introduction and Objectives: Sacrocolpopexy (SC) with mesh represents the gold-standard treatment of recurrent pelvic organ prolapse. Recurrent prolapse is common in women following total or near total mesh removal. Many of these women desire prolapse treatment due to bladder incomplete emptying but prefer biological material as they have had a negative experience with transvaginal mesh. We report our early results RALS with allograft fascia lata (FL) in women with aversion to polypropylene mesh.

Methods: A retrospective review of women undergoing RALS for recurrent pelvic organ prolapse in a 3.5-year period was performed. Women who underwent RALS with mesh or those with a follow up less than six months were excluded. Clinical information, including preoperative, operative, and post-operative follow up data was obtained. Y-grafts were created from allograft fascia lata in a standard fashion and fixed to the vagina and sacrum with 2-0 gortex. Patient-reported success was defined as resolution of the complaint of vaginal bulge. Objective outcome was defined as stage I prolapse or less in any compartment.

Results: 100 patients underwent RALS in the past 3.5 years, of which 27 underwent RALS with allograft FL. 24 of 27 (89%) had a successful procedure. Concomitant procedures included: mesh removal (7), PVDR (3), supracervical hysterectomy (2), vaginal fistula repair (2), repair of bowel mesh erosion (1), concomitant GYN procedure (4), cystorrhaphy (3), and ventral hernia repair (1). Indications for use of allograft FL included: patient preference (2), surgeon preference (1) and patient-physician preference (24). Prior surgeries included: TVM prolapse kit (14), TVT (12), RALS with mesh (2), removal of TVM (18), and hysterectomy (25). Average operative time was 310 minutes with mean estimated blood loss of 115 ml across the series. Complications Clavien Dindo grade 3 or greater included: intraoperative ureteral injury (1), hypotension fluid resuscitation (1), and bladder injury (1). No patient has developed graft related complications. Bladder incomplete emptying resolved in three of nine patients. Of the 18 patients who experienced urge incontinence, 15 patients were cured or improved.

Conclusion: RALS with allograft FL appears to be a safe alternative and effective (89%) in the short-term to RALS with polypropylene mesh. Our initial experience with allograft FL for RALS is encouraging, however long-term follow is necessary to determine if outcomes will be durable.
Poster #NM96
ACCURACY OF A PORTABLE BLADDER SCANNER IN MEASURING PVR IN WOMEN WITH PELVIC ORGAN PROLAPSE

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Presented By: Steven Weissbart

Introduction and Objectives: Lower urinary tract evaluation in women with pelvic organ prolapse (POP) includes measurement of the post void residual urine volume (PVR). Portable bladder scanners may not provide an accurate measurement of PVR in women with POP as the bladder is no longer in its normal anatomic position. The aim of this study is to investigate the accuracy of a portable bladder scanner to measure PVR in women with POP.

Methods: We prospectively studied 39 women with POP in the outpatient setting. Subjects were instructed to void, and three PVR measurements were obtained: (1) using the BladderScan® BVI 9400 without POP reduction (M1), (2) using the BladderScan® BVI 9400 with POP reduction (M2), and (3) using straight catheterization (M3). With the catheterized volume considered the exact volume, the percentage error from measuring PVR using the bladder scanner was calculated with POP reduced and unreduced. Percentage errors between the two measurements were compared using a Wilcoxon signed−rank test and Bland−Altman plots were generated. Spearman's correlation was used to assess the relationships between the three methods for measuring PVR, as well as to study the effect of BMI on percentage error.

Results: Median PVR of the study subjects was 33mL (96 IQR), 60mL (103 IQR), and 50mL 110 (IQR), as measured by the bladder scanner with POP unreduced, the bladder scanner with POP reduced, and straight catheterization, respectively. The median difference in measurements between the catheterized volumes and the two bladder scanner measurements were: −3mL (M1−M3) and −1mL (M2−M3). There were strong positive relationships between the three PVR measurements (bladder scanner with prolapse unreduced vs. catheterized r=0.75, p<0.001; bladder scanner with prolapse unreduced vs. bladder scanner with prolapse reduced r=0.82, p<0.001; bladder scanner with prolapse reduced vs. catheterized r=0.87 p<0.001). There was no difference in the percentage error between the two bladder scanner measurements (median 30% vs. 46%, p=0.24). Bland−Altman plots demonstrated agreement between the measurements. While BMI did not affect accuracy during POP reduction (r= 0.20, p=0.26), an inverse relationship between BMI and accuracy with POP unreduced approached significance (r=0.29, p=0.09).

Conclusion: The BladderScan® BVI 9400 appears to accurately measure PVR in women with POP. Accurate PVR measurement in obese women with POP may require prolapse reduction.
Poster #NM97
HIGH MIDLINE LEVATOR MYORRHAPHY FOR VAGINAL VAULT PROLAPSE: LONG-TERM RESULTS
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Presented By: Yuefeng Wu

Introduction and Objectives: To review long-term outcomes following a vaginal native tissue repair (High Midline Levator Myorrhaphy, HMLM) in women with symptomatic vault prolapse.\textsuperscript{1,2}

Methods: Following IRB-approval, a prospectively maintained database of women who underwent HMLM for symptomatic vault prolapse (VP) alone or associated with other POP was reviewed for demographic data, history of prior POP, physical examination, hospital stay length, and long-term outcomes. Patients with <6 months follow up and no retrievable operative notes were excluded. Data was reviewed by a third party investigator not involved in patient care. Failure was defined as same compartment POP ≥ stage 2 or POP reoperation. Descriptive statistics and Kaplan-Meier curves were obtained.

Results: Between 1996 and 2014, 94 women who underwent HMLM were studied. Mean follow-up time was 7.7 (0.6-18.4) years, mean age was 69.6 (36-91), and 89% were Caucasian. Patients were grouped by POP indications: VP (6), vault and anterior (26), vault and posterior (35), and all three compartments (27) (Table 1). No intra-operative complications were reported. Ten (11%) early complications (<30 days) were noted (Clavien I/II). Sixty-seven (71%) women were cured of VP. Ten women (11%) had failure in a non-apical compartment and 17 (18%) had apical failure. Reoperation rate was 14% (13/94) and 5% (5/94) for vault and non-vault recurrences, respectively. VP recurrence-free probability between women with ≤ 2 versus 3 POP compartments was statistically significant (p = 0.0128).

Poster #NM98
TRENDS IN MESH USAGE AND RESIDENT INVOLVEMENT FOR VAGINAL SURGERY FROM THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM
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Presented By: Majid Mirzazadeh

Introduction and Objectives: Recent legal questions regarding the usage of mesh has made many physicians cautious about using this in pelvic surgery. Concurringly, the potential decreased usage could impact resident teaching and training using these materials. The goal of this analysis was to assess the utilization of mesh procedures over time from the National Surgical Quality improvement Database (NSQIP) and to compare these trends with resident involvement.

Methods: Using the NSQIP database, we pooled surgical data from multiple vaginal procedures, including anterior and posterior colporrhaphy, paravaginal defect repair, enterocele repair, and colpopexy using CPT coding for years 2010 through 2012. We stratified this data by the modifier associated with mesh usage at the time of the procedure. This analysis included both urologic and gynecologic surgeons. We queried within each group to determine resident participation in the procedure. Resident involvement was assessed overall and then stratified based on year of procedure.

Results: We identified a total of 6,924 pelvic reconstruction surgeries of which 1280 cases (18.5%) utilized mesh. Mesh utilization decreased over time from 427 (26%) of cases in 2010 to 481 (21%) in 2011 and 372 (12%) in 2012 (p<0.001 for trend). Overall, residents were more likely to participate in a procedure that did not involve mesh usage (28.4% vs. 24.5%, p = 0.0068). When stratified by year we found a decrease in resident involvement for all procedures. In consecutive years resident involvement in mesh cases decreased from 155/427 (36%) in 2010 to 106/481 (22%) in 2011 and finally 57/332 (15%) in 2012 (p<0.01 for trend).

Conclusion: In a review of NSQIP data from 2010 through 2012, vaginal pelvic reconstruction procedures had decrease usage of mesh and resident involvement. Resident training in the utilization of vaginal procedures that include mesh is likely negatively affected by the steep drop in overall usage and exposure.
OUTCOMES OF PREGNANCY FOLLOWING SURGERY FOR PELVIC ORGAN PROLAPSE: A SYSTEMATIC REVIEW

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Presented By: A. Lenore Ackerman

Introduction and Objectives: Traditionally, surgical intervention to correct pelvic organ prolapse (POP) is offered to women only after they have completed child bearing. Although literature on the topic is sparse, pregnancy after surgery for POP is discouraged by most physicians due to fear of safety of the child and mother and the risk of recurrent prolapse. Through a systematic review of the available literature examining pregnancy after POP repair, we sought to evaluate the safety of corrective POP surgery prior to cessation of child bearing.

Methods: A review was organized according to the guidelines of the Meta-Analysis of Observed Studies in Epidemiology (MOOSE) group. Articles published prior to August 2015 were identified by a comprehensive search of the PubMed®, EMBASE® and Cochrane Review databases. Search terms included pregnancy combined with one of 15 prolapse surgery terms. Articles were excluded if they did not include pregnancies after POP surgery or discussed birth after pelvic floor trauma without surgical intervention. Of these 379 identified titles, 20 articles were selected for inclusion.

Results: The 20 selected articles consist of 11 case reports and nine medical record-based case series. In total, these reports detailed the outcomes of 117 pregnancies in 98 women. There were five perinatal complications, two of which were pain after sacrohysteropexy from tractioning necessitating elective term Caesarian delivery. The other three were not attributable to prior prolapse surgery. A total of six women suffered prolapse recurrence requiring subsequent corrective surgery, although follow up was frequently short or absent.

Conclusion: Although the literature is extremely limited on the subject of pregnancy following surgery for POP, available data suggests that physicians should not be apprehensive to correct POP before completion of childbearing. There is a lack of data to support the use of elective Caesarian section following prolapse repair; even with vaginal delivery, the risk of recurrent prolapse appears low, with minimal risk to the safety of the baby and mother. Further prospective studies are needed to provide better evidence-based recommendations for POP management in women of childbearing age.
HOW TO TEACH A ROBOTIC-ASSISTED SACROCOLOPEXY (RASCP): A REVERSE STEP-WISE APPROACH TO SURGICAL EDUCATION

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Presented By: Jessica Harroche

Introduction and Objectives: Robotic assisted operations to treat pelvic organ prolapse using the da Vinci Surgical System are increasingly popular among female pelvic reconstructive surgeons. Training residents and fellows to use this system presents its own unique challenges, especially in settings where only one console is available. Given the potentially lengthy nature of a multi-step surgery, many surgeons are reluctant to increase operating time as a result of multiple switches between operators, inevitably limiting trainee access to the operating console. We propose a reverse step-wise approach to teaching a robotic assisted sacrocolpopexy (RASCP) as a method of training residents and fellows while minimizing effects on total surgical time.

Methods: All residents and fellows were required to undergo certification training for the da Vinci Surgical System prior to gaining scrubbing privileges. After demonstrating proficiency with table-side assistance, trainees were permitted to perform parts of the surgery at the operating console. Between July 2013 and June 2015, 84 patients underwent RASCP by a single primary surgeon at our institution. Our teaching algorithm divides RASCP into six steps. These six steps were taught in reverse order where the attending surgeon switched places with the trainee at the appropriate step minimizing the amount of time spent alternating between operating surgeons. Total procedure time was measured from skin incision to abdominal skin closure. Statistical analysis was conducted after grouping the cohort according to the number of steps performed by the trainee (0-6). Approximately normal variables were compared utilizing one-way analysis of variance; P<0.05 was considered statistically significant.

Results: There was no difference in mean age (P = 0.760) or body mass index (P = 0.832). There was no significant difference in mean operative time (P = 0.356) between all groups. Total surgical time was not altered by the amount of steps performed by the trainee.

Conclusion: A reverse step-wise approach is a time effective technique that can be used to effectively and safely train residents and fellows to perform RASCP.
Poster #NM101
ABDOMINAL VERSUS VAGINAL COLPOPEXY FOR APICAL PROLAPSE: A COMPARISON OF NATIONAL PATIENT CHARACTERISTICS AND COMPLICATIONS
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Presented By: Marissa Velez

Introduction and Objectives: There is debate surrounding optimal repair of apical prolapse. We analyzed the American College of Surgeons National Surgical Quality Improvement Project (NSQIP) database to compare utilization and surgical outcomes of abdominal and vaginal colpexy.

Methods: Current Procedural Terminology was used to identify patients undergoing colpexy from 2006-2013. Patient characteristics, surgeon type and complications were analyzed. For statistics logistic regression analysis was used.

Results: 3242 patients were identified. 2168 (67%) patients had abdominal colpexy (1433 laparoscopic/robotic, 66 with mesh) and 1074 (33%) vaginal (704 extraperitoneal, 370 intraperitoneal, 182 mesh). Those who had vaginal repair were older (64.4±11.2 vs 61.2±10.9 years p<0.05), more likely to have heart disease (48% vs. 42%, p=0.05), and to have comorbidities of any type (49.8% vs. 43.4%, p=0.01). Urinary tract infection was the most common complication (3.5%), followed by wound infection (1.7%), and blood transfusion (1.2%). Pneumonia rate (0.3% vs 0% p=0.06) and superficial incisional infections (1.3% vs. 0.3%p<0.05) were higher in the abdominal group while more vaginal patients had blood transfusion (1.9% vs. 0.9% p=0.023). Abdominal operative time was longer (201±84 vs 124±70 minutes p<0.05) as was length of stay (1.9±7.9 vs. 1.4±3 days p<0.05). Abdominal colpexy patients were more likely to have concurrent sling or hysterectomy (23.2% vs. 9.8%, p=0.04, p<0.05). Those undergoing vaginal colpexy were more likely to have mesh use (16.9% vs. 3%, p<0.05). In multivariate analysis ASA class≥3, and longer operative time were associated with greater morbidity (OR 1.5 p=0.008, OR 1.004 p<0.05) and surgical complications (OR 2.0 p=0.008, OR 1.006 p<0.05). Use of laparoscopy/robotics for abdominal procedures decreased morbidity and complications (OR 0.59 p=0.001, OR 0.30 p<0.05). Concomitant procedures and mesh use did not increase risk.

Conclusion: Abdominal colpexy is more commonly performed than vaginal. Patients undergoing vaginal repair are older with more comorbidities. While vaginal colpexy appears to carry higher transfusion risk, abdominal colpexy is associated with more respiratory and infectious complications as well as longer operative times and hospitalization. Overall, ASA class and operative time increase complications risk while minimally-invasive technique may reduce risk. No increased risk was seen with mesh use.

Poster #NM102 – WITHDRAWN
ANALYSIS OF RESIDENT IMPACT ON FLOW DISRUPTIONS DURING ROBOTIC SURGERY
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Presented By: Tom Feng

Introduction and Objectives: Surgical flow disruptions are deviations from the natural progression of a procedure which potentially compromise the efficiency and safety of the operation. Although a single flow disruption will likely result in little to no consequence on the outcome of an operation, the accumulation of flow disruptions has empirically been linked to a higher prevalence of surgical errors. In surgery, they can occur every 5-10 minutes, reduce efficiency, lead to more serious problems, and indicate where the systems of care are failing to deliver the best performance. We sought to determine the impact of resident training on flow disruptions and its effect on operative time.

Methods: This was a prospective observational study of a total of 35 robotic urologic and gynecologic surgeries performed at a single teaching institution. Eighteen of the 35 cases had resident participation. Flow disruptions were noted by previously trained observers and sorted into the following categories: disruptions in communication, coordination, surgeon decision-making time, equipment issues, environment, and patient factors. The number of flow disruptions (FD) and rate of flow disruptions per hour in cases with resident involvement was compared to that of non-resident group.

Results: Mean OR time for robotic cases with resident involvement was 5.9 hours compared to 4.5 hours in non-teaching cases. Mean number of FD observed in teaching cases (n=67) was significantly greater than of non-teaching cases (n=33), p<0.001. The mean FD/hr rate for teaching cases was 11.7 per hour compared to 7.3 per hour for non-teaching cases (p<0.001). FD overall contributed to 11.8% of total OR time. FD on average contributed to an additional 25 minutes per non-teaching case and 48 minutes per teaching case. The most common FD observed were coordination disruptions, which included missing equipment. The second most common FD occurred in the equipment category, which included primary malfunction and resident unfamiliarity with how a piece of equipment functions.

Conclusion: The significant increase in flow disruptions with resident involvement demonstrates the multifaceted nature of training in robotic surgery. Many factors other than surgical technique on the robotic console play a role in the learning curve for robotics. Our study suggests that teaching cases have more flow disruptions and that decreasing flow disruptions may improve efficiency and decrease operative time.
Poster #NM104
PREVALENCE OF DEFECATORY SYMPTOMS IN PATIENTS WITH POSTERIOR VAGINAL WALL DEFECTS ON DYNAMIC MRI
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Presented By: My-Linh Nguyen

Introduction and Objectives: Over the last decade, the use of dynamic MRI (dMRI) to assess multi-compartment prolapse has added to the understanding of anatomical defects within the pelvic floor; MRI has the ability to characterize small changes in vaginal support. We sought to determine the prevalence of defecatory dysfunction in women with MRI identified posterior vaginal wall defects (MRIPD).

Methods: We retrospectively reviewed data of women who presented to a tertiary referral center for pelvic medicine and underwent a pelvic dMRI. At the time of dMRI, patients were administered an intra-rectal and intra-vaginal mixed solution containing ultrasound gel, barium and gadolinium. MRI was performed on 1.5T and 3T scanners: Axial, coronal and sagittal fast T2 sequences (HASTE, SSFSE). Multiple dynamic mid sagittal slices were acquired at rest and during maximal pelvic floor straining. Prolapse of all vaginal compartments was measured and graded by published guidelines.* MRIPD was considered present if grade 1 or higher. Physical exam posterior defect (PEXPD) was considered present if Baden-Walker grade 1 or higher. Defecatory symptoms were obtained from the Pelvic Floor Distress Inventory and patient presenting complaint. Symptoms, MRIPD and PEXPD were analyzed using logistic regression to calculate adjusted odds ratios; confidence intervals of 95% and p-values of <0.05 were considered significant.

Results: Between 1/1/2013 and 7/1/2014, 116 patients underwent dMRI. Median age was 61 years (range 29-87); mean BMI was 26.5 kg/m²; median vaginal deliveries was two. The overall prevalence of MRIPD was 76.7% (89 of 116); 83% (40 of 48) in symptomatic and 72% (49 of 68) in asymptomatic patients. Overall prevalence of defecatory symptoms was 41.4% (48 of 116). In MRIPD patients only, the prevalence of defecatory symptoms was 45% (40 of 89): 43.6% in grade 1; 45.2% in grade 2; 50% in grade 3. Defecatory symptoms were not strongly associated with either MRIPD (OR 1.86, CI 0.643-5.84, p 0.265) or PEXPD (OR 0.614, CI 0.265 -1.40, p 0.248), while MRIPD and PEXPD were significantly associated with one another (OR 2.9, CI 1.1-8.2, p<0.027).

Conclusion: Prevalence of defecatory symptoms in MRIPD patients was similar across grades. Symptoms were not predictive of MRIPD or PEXPD, with most patients being low grade (1 or 2). The detection of posterior defects on dMRI is high and is commonly associated with defecatory symptoms.
THE USE OF DEFECOGRAPHY TO IDENTIFY SYMPTOMATIC ENTEROCELES
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Presented By: Juzar Jamnagerwalla

Introduction and Objectives: The classic enterocele associated with vaginal vault prolapse is usually asymptomatic. However, enteroceles in the setting of good apical support can be significantly life altering due to symptomatology. Our primary objective was to identify enterocele symptoms that lead to defecography, and differentiate enteroceles from other pelvic floor disorders that cause defecatory dysfunction.

Methods: This was a retrospective chart review of women undergoing defecographic studies at one institution. The electronic medical record was reviewed for presenting symptoms, physical exam findings, and defecography results. Institutional review board (IRB) approval was obtained. Statistics included Chi-squared test for categorical data, and student t-tests for continuous variables.

Results: A total of 144 women were identified. On defecography 38 had an enterocele, 64 had a rectocele, 39 had rectal prolapse or intussusception, and 60 had pelvic floor dysfunction (PFD) identified. The average age was 56.3±11.5. Symptoms of an enterocele included constipation (68.4%), sensation of fullness or pressure (78.9%), or incomplete evacuation of bowels (26.3%). There was no significant difference in symptoms between enteroceles, rectoceles and PFD (Table 1). There was significantly fewer subjects complaining of a sensation of fullness or pressure in the rectal prolapse group versus the enterocele group, (p=0.00002). Of those with an enterocele, concomitant pelvic floor disorders that were identified on defecography included rectocele n=14 (36.8%), rectal prolapse n=13 (34.2%), FPD n=5 (13.2%), and fecal incontinence n=17 (44.7%). The most common presenting symptoms for a combination enterocele/rectocele or a combination enterocele/rectal prolapse was sensation of fullness or pressure (92.9% and 100%), respectively.

Conclusion: Our cohort demonstrated that symptoms for pelvic floor disorders could appear similar and that some women with complaints suggestive of a rectocele only have an enterocele, which may be difficult to diagnose clinically or on exam alone. Women with complaints suggestive of a rectocele but a negative exam, would likely benefit from defecography studies to identify an enterocele.
Poster #NM106
THE IMPACT ON INTERNET SEARCH ACTIVITY AND MEDIA COVERAGE AFTER THE FDA SAFETY COMMUNICATION ON SURGICAL MESH FOR PELVIC ORGAN PROLAPSE
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Presented By: Benjamin Stone

Introduction and Objectives: In July 2011, the U.S. Food and Drug Administration (FDA) issued a safety communication regarding serious complications associated with surgical mesh for pelvic organ prolapse, prompting increased media and public attention. The primary aim of this study was to analyze Internet search activity and news article volume with respect to pelvic organ prolapse after this FDA communication. The secondary aim was to evaluate the quality of available websites providing patient-centered information.

Methods: Google Trends was utilized to evaluate search engine trends for the term “pelvic organ prolapse” across all categories between January 1, 2004 and December 31, 2014, refined to searches conducted within the United States. Google News was utilized to quantify the number of news articles annually under the term “pelvic organ prolapse.” The Google search results for the term “pelvic organ prolapse” were assessed for quality using the Health On the Net Foundation (HON) certification. Statistical analysis was performed using SPSS (version 21).

Results: There was a statistically significant increase in mean search activity around the time of the FDA communication between 2010 and 2011 (p=0.021). Though mean search activity increased steadily from 31.91 in 2007 to 73.75 in 2014, no other annual interval had a statistically significant increase in mean search activity (Figure 1). In a linear regression analysis, the r2 value for the news articles per year since 2010 was 0.88. Website quality assessment revealed that 42% of websites on the first two search engine result pages were HON certified, with .gov sites providing the highest quality information.

Conclusion: The Internet is a highly utilized resource for patient-centered health information. The 2011 FDA safety communication regarding surgical mesh for pelvic organ prolapse was associated with high levels of public and media attention. However, the quality of relevant health information on the Internet remains of poor quality. Future quality assurance measures may be critical in enabling patients to take active roles in their own healthcare.
Poster #NM107
RISK OF PROLAPSE RECURRENCE AFTER NATIVE TISSUE ANTERIOR PROLAPSE REPAIR WITH INTERMEDIATE TO LONG-TERM FOLLOW-UP
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Presented By: Philippe Zimmern

Introduction and Objectives: We report our experience with pelvic organ prolapse (POP) recurrence after native tissue repair for Stage 2 anterior prolapse.

Methods: We reviewed a prospectively maintained, IRB-approved, database of women with symptomatic Stage 2 anterior prolapse who underwent vaginal repair with anterior vaginal wall suspension (AVWS) between 1996 and 2014. Women with concurrent POP repair or hysterectomy or without 1 year follow-up were excluded. Failure was defined as ≥ Stage 2 prolapse recurrence on examination or re-operation for symptomatic POP. Outcome measures included validated questionnaires (UDI-6, QoL), physical examination, standing voiding cystourethrogram at 6 months post-operatively, further surgery for POP in other compartments or for secondary stress urinary incontinence or fecal incontinence, and complications.

Results: 121 women met inclusion criteria, with a mean follow-up at 5.8 ± 3.7 years. (Flow Chart) Prolapse recurrence rates were: isolated anterior (7.4%), isolated apical (10.7%), isolated posterior (8.3%), multiple compartments (19%). Surgery for recurrent prolapse included: anterior compartment: 3.3% at 1.4 ±1.0 years, apical: 9.9% at 2.8 ± 3.0 years, posterior compartment: 5.8% at 2.0 ± 1.0 years, and multiple compartments: 17.4% at 3.2 ± 3.3 years. There was a 1.6% rate of intraoperative complications and 5.7% rate of 30-day complications (all Clavien I).

Conclusion: AVWS for symptomatic Stage 2 anterior prolapse offers a native tissue vaginal repair with minimal morbidity and low anterior recurrence rate at intermediate to long-term follow-up. However, 33% required secondary prolapse compartment procedures from 0.6-13 years later, highlighting the importance of long term follow-up.
Post#NM108
INCIDENCE OF POSTOPERATIVE URINARY RETENTION FOLLOWING OBLITERATIVE PELVIC ORGAN PROLAPSE SURGERY
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Presented By: Eric Hurtado

Introduction and Objectives: There has been an increase in the number of ambulatory pelvic organ prolapse (POP) surgeries. Recent re-classification of vaginal POP surgeries as out-patient has contributed to this increasing trend in the elderly since 2013. To compare the incidence of post-operative urinary retention (PUR) rates on postoperative day 0 (POD 0) versus postoperative day one (POD 1) among patients undergoing obliterative vaginal procedures. These procedures are usually performed on the elderly and thought to have high rates of PUR.

Methods: Retrospective review of a prospective Urogynecology database at a single institution between 2010-2015. Subjects underwent obliterative vaginal procedures, including Le Fort colpopleisis and Colpectomy under spinal or general anesthesia. Standardized voiding trial was performed. The bladder was filled with 300 ml of saline. Subjects were given two hours to void. The trial was considered to be successful when the voided volume was ≥ 66% of total volume instilled with ≤ 33% remaining in the bladder, as assessed by ultrasound. Patients were compared based on day of discharge, Group 1 being outpatient and Group 2 being inpatient. Group 1 underwent a standard voiding trial in the recovery area after being able to ambulate. Group 2 underwent the trial on POD 1.

Results: Total of 69 subjects was included. 15 in Group 1 and 54 in Group 2. There was no difference in the Demographic characteristics of both groups (Table 1). There was no significant difference in the urinary retention rates between the two groups 33.33% (Group 1) vs 14.81% (Group 2) (Table 2).

Conclusion: There was no significant difference in PUR rates in patients undergoing obliterative vaginal procedures in the outpatient versus inpatient setting. Risk of PUR may not be dependent on the day of the attempted voiding trial. Larger studies in this area would be appropriate.
PROLAPSE REPAIR WITH NON-FROZEN CADAVERIC FASCIA LATA: LONG-TERM RESULTS
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Presented By: Steve Rivera

Introduction and Objectives: There has been renewed interest in mesh-free pelvic organ prolapse repairs due to concerns of mesh complications. Since 2000, we have performed the Cadaveric Prolapse repair with Sling (CaPS) procedure utilizing solvent dehydrated non-frozen cadaveric fascia lata. We present long-term outcomes for the cystocele repair portion of the CaPS procedure.

Methods: 625 women (average age 65 years, range 30-99) underwent a CaPS procedure from 2000 to 2014. Physical exam and questionnaires in a prospectively maintained database were used to assess prolapse recurrence, patient satisfaction, and sexual function. Failure was defined as recurrent cystocele ≥ grade 2, using the Baden-Walker system. 511 (82%) patients had ≥ 3 months follow-up with physical exam. Mean duration of follow-up exam was 39 months (range 3-190). 126 (20%) patients had at least five years follow-up with exam. 523 (84%) patients completed questionnaires. Mean duration of follow-up questionnaire was 63 months (range 4-190). 289 (46%) patients had at least five years of follow-up with questionnaire.

Results: Prolapse failure occurred in 119/511 (23%) patients at an average of 34 months (range 1-128). 41 (8%) patients had cystocele recurrence, 60 (12%) vault prolapse, and 6 (1%) uterine prolapse. 59 (50%) patients chose no intervention. Abdominal sacralcolpopexy in 20, transvaginal fascia repair in 18, and transvaginal mesh repair in 13. 89/523 (17%) women were sexually active. 19/89 (21%) reported discomfort with intercourse. At the time of each patient's last questionnaire, 429/523 (82%) patients would recommend surgery and 429/523 (82%) patients would repeat surgery. 314/514 (61%) patients reported 8 or greater satisfaction on a visual analogue scale of 1-10, 10 being extremely satisfied. The complication rate was 4% (24 / 621) which included eighteen Grade 1 complications (mesh exposure, wound separation) and five Grade 3b complications (bowel injury, vaginal hematoma, mesh erosion, ureteral obstruction, vaginal granulation) using the Clavien-Dindo classifications for reporting complications.

Conclusion: 77% of patients who underwent the CaPS procedure had no significant cystocele recurrence, with average and maximum follow-up exams of 39 months and >15 years, respectively. There was high patient satisfaction and low morbidity.

Funded: Coloplast

Poster #NM110 - WITHDRAWN
Poster #NM111
SURGICAL OUTCOMES AFTER PELVIC ORGAN PROLAPSE REPAIR WITH HYSTEROPEXY USING TRANSVAGINAL MESH
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Presented By: Natalie Gaines

Introduction and Objectives: Instead of pursuing concomitant hysterectomy, some women are opting for uterine-preservation when undergoing pelvic organ prolapse (POP) repair. At our institution we have significant experience with transvaginal mesh repair (TVM). In this study, we examine outcomes for TVM repair of POP in patients who have intact uteri.

Methods: Our retrospective transvaginal mesh database was queried for women who underwent consecutive pelvic prolapse repair with no history of hysterectomy and no concomitant hysterectomy from 7/2009 to 12/2013. Demographics, baseline characteristics, perioperative outcomes, recurrent prolapse, and need for additional surgeries were evaluated. Descriptive statistics were performed.

Results: Sixty-six patients with no history of hysterectomy and no concomitant hysterectomy were identified that underwent TVM pelvic organ prolapse repair with Elevate™. 47/66 underwent anterior compartment repair, 7/66 had posterior repair, and 12/66 had anterior and posterior compartments repaired. Mean age was 70.9 yrs +/- 9.3. The majority of patients (59/60; 98%) were postmenopausal and 10/66 (15%) had a history of prior prolapse repair. At baseline, 58/63 had anterior prolapse (46/53 Grade 3 or 4), 26/62 had posterior prolapse, and 23/62 had uterine prolapse. The first follow-up visit occurred at an average of 33 days postoperatively. 61/66 patients returned for the first postoperative visit; 1 patient was noted to have Grade 1 anterior prolapse, 2 patients had Grade 1 posterior prolapse, and no patients had recurrent uterine prolapse. At an average follow-up of 231 days, 6/52 had anterior prolapse (5 Grade 1 and 1 Grade 2), 7/52 had posterior prolapse (7 Grade 1), and 2/52 had uterine prolapse (2 Grade 2). 3/51 patients complained of symptomatic bulge at the second visit. 13/57 patients underwent a reoperation for any reason and the majority were related to stress urinary incontinence treatment Only 1 patient underwent a robotic sacrohysteropexy for recurrent apical prolapse.

Conclusion: Patients who choose uterine sparing transvaginal mesh POP repair can have good surgical outcomes 6-8 months postoperatively. In our cohort, only one patient required reoperation for recurrent uterine prolapse. Further study is needed regarding long-term outcomes with uterine-sparing surgery.
SURGICAL MANAGEMENT OF LOWER URINARY TRACT PERFORATION FOLLOWING PRIOR MESH PROLAPSE REPAIR: MESH EXCISION AND URINARY TRACT RECONSTRUCTION

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Presented By: Nicholas Westfall

Introduction and Objectives: Transvaginal Mesh (TVM) has been associated with lower urinary tract perforation. Mesh bladder perforation often requires complex reconstruction in order to resolve the issue. We sought to review our management of LUT mesh bladder perforation using a novel combination of surgical techniques including total or near total mesh excision and urinary tract reconstruction.

Methods: We retrospectively reviewed the medical records of patients undergoing transvaginal removal of polypropylene mesh from the lower urinary tract or vagina. Patients experiencing bladder perforation from their TVM were selected. Clinical information, including preoperative, perioperative, and postoperative data was obtained.

Results: Twelve patients met inclusion criteria for the study. Mean patient age was 60 years of age with a mean BMI of 30.7. 11/12 patients experienced bladder perforation from anterior mesh grafts, while the final patient experienced perforation from a sacrocolpopexy mesh graft. Two patients had undergone attempted treatment prior to referral, endoscopic excision (1), transvaginal mesh excision (1). Vaginal pain or bleeding was the most common presenting symptom, present in 9/12 patients. Patients had a mean of 22 months from time of symptom onset to the time of referral for treatment. 10/12 patients were managed with transvaginal approaches, while one patient was treated with a robotic-assisted laparoscopic approach and one treated with a combined abdominal/vaginal approach. Patients were treated via mesh excision and other procedures including cystorraphy (11), partial cystectomy (1), biological allograft sacrospinous ligament fixation (7), vesicovaginal fistula repair (2), pubovaginal sling with autologous rectus fascia (4), biological allograft sacrocolpopexy (1), and bladder augmentation (1). Only 1/12 patient experienced ureteral obstructing requiring reimplantation, thus necessitating an abdominal approach. Mean length of follow up for all patients was 20 months. All 12 patients underwent a single stage procedure for mesh excision with appropriate reconstruction, and all patients had resolution or improvement of their primary mesh complaint.

Conclusion: Total or near total removal of pelvic organ prolapsed mesh with the use of adjunctive reconstructive techniques can resolve LUT mesh perforation in a single operative setting. Transvaginal approaches were successful without need for abdominal exploration in most cases.
TEN-YEAR OUTCOMES OF RECTOCELE REPAIR IN A TERTIARY REFERRAL SETTING

Introduction and Objectives: Two generally accepted methods of rectocele repair in the post mesh era include native tissue repair (NTR) and repair with biograft augmentation. Literature on long-term repair durability, particularly with biograft augmentation, is limited. We present our 10-year follow-up for both approaches at a tertiary referral center.

Methods: We performed a cross-sectional analysis of patients who underwent rectocele repair from 2000-2005 with either solvent-dehydrated cadaveric fascia lata (Tutoplast®, Coloplast – Denmark) augmentation or NTR, and completed validated follow-up questionnaires assessing patient-reported outcomes at 10 years after surgery. Baseline characteristics were reviewed. The primary outcome was pelvic floor symptom bother measured by the Pelvic Floor Distress Inventory (PFDI-20). Sub-scales including Pelvic Organ Prolapse Distress Inventory 6 (POPD-I-6), Colorectal-Anal Distress Inventory 8 (CRAD-8), and Urinary Distress Inventory 6 (UDI-6) were reported (scores 0-100, each). The Patient Global Impression of Improvement (PGI-I, scores 1-6) and subjective patient satisfaction (using an 11-point Likert scale with 10 indicating highest satisfaction) were also evaluated.

Results: Of the 49 cases included in this study, 32 rectocele repairs were performed with cadaveric fascia lata and 19 were with NTR. Mean patient ages were 60 (SD 11) and 61 (SD 10) years, respectively. Percent of subjects with baseline Baden-Walker grade 2 prolapse or less was 71% and 81%, respectively. Mean PFDI-20 scores at 10 years after rectocele repair were 82 (n=17, median 64, range 0-247) with cadaveric fascia lata and 76 (n=13, median 56, range 0-275) with NTR. Sub-scale results are listed in figure 1. Mean PGI-I at 10 years after rectocele repair with cadaveric fascia lata was 2.6 (n=26, median 2) and mean satisfaction was 6.9/10 (n=26, median 9). Mean scores after NTR were 2.6 (n=17, median 2) and 6.4/10 (n=17, median 8), respectively.

Conclusion: The majority of women evaluated with validated questionnaires at 10-year follow-up from rectocele repair by cadaveric fascia augmentation or NTR had low symptom burden scores and were satisfied. Further study is warranted to compare the durability of these techniques.
Poster #NM114
LONG TERM OUTCOMES FOR AXIS™ DERMIS FOR FEMALE PELVIC FLOOR REPAIR
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Presented By: Nima Shah

Introduction and Objectives: Pelvic organ prolapse is a common problem and often managed surgically. Recurrence rates of surgical treatments involving native tissue or fascial harvesting have necessitated a method to augment the inherently weak pelvic floor support structure. The AXIS™ dermis graft is an alternative option for support in vaginal prolapse repair. We have previously demonstrated the results of AXIS™ dermis graft for up to 24 months and have data up to 36 months. This is a prospective, single armed, multi-center post-market study to assess the efficacy in AXIS™ dermis graft in treating pelvic organ prolapse.

Methods: Between Oct 2011 and Sept 2015, 64 female patients between the ages of 18-80 with pelvic organ prolapse were enrolled in the study. Prolapse was staged using the POP-Q method. Patients underwent repair of prolapse using AXIS™ dermis graft via a standardized technique with anatomical fixation points. Follow up was completed at six weeks, as well as at six, 12, 24 and 36 months postoperatively with physical exam, POP-Q and validated questionnaires (PFDI-20, PFIQ-7, PISQ-12, SSQ-8 and PGI-I).

Results: Thirty-nine of the 64 patients completed 12 month follow up, 28 had 24 month follow up, and 10 had 36 month follow up, with a median age of 61.1. The majority of patients had baseline stage 2 and 3 prolapse (n=44 68.75%, n=20, 31.25%). At 24 months, 61% of patients had stage 1 (n=17), six patients had stage 2, four patients had stage 0, and 1 patient had stage 3. At 36 months, seven patients had stage 1 prolapse (70%), two patients had stage 2 and 1 patient had stage 3. In all compartments, the majority of patients demonstrated cure, and no patients had worsening of stage. Table 1 represents a comparison of means of questionnaires and associated p-values. Nineteen patients reported adverse events with infection being the most common (n=7), particularly procedure-related urinary tract infection. Pain/dyspareunia was second most common (6/19), and graft exposure in two patients at the same site.

Conclusion: AXIS™ graft is a viable option for pelvic organ prolapse repair. With the available 36 month data, we demonstrate durable results with significant improvement in quality of life domains as measured by validated questionnaires.
Poster #NM115
PERIOPERATIVE OUTCOMES FOLLOWING OPEN AND MINIMALLY INVASIVE URETERAL REIMPLANT: AN ANALYSIS OF 512 CASES FROM THE NATIONAL SURGICAL QUALITY IMPROVEMENT (NSQIP) DATABASE
Vignesh T. Packiam, MD; Andrew J. Cohen, MD; Joseph J. Pariser, MD; Charles U. Nottingham, MD; Sarah F. Faris, MD; Gregory T. Bales, MD
University of Chicago Medicine, Chicago, IL
Presented By: Vignesh Packiam

Introduction and Objectives: Minimally invasive surgery (MIS) has improved perioperative outcomes for many urologic procedures. Recent institutional series show safety of robotic-assisted and pure laparoscopic ureteral reimplantation (LUR). We utilized a large prospective national database to evaluate 30-day outcomes following LUR and open ureteral reimplantation (OUR).

Methods: We queried the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database from 2005 to 2013 to identify adult patients undergoing LUR or OUR, without concomitant partial cystectomy or ureterectomy. The primary outcomes assessed in this study were 30-day complications, unplanned reoperations and readmissions. Descriptive statistics were performed using the chi-squared test and two sample t-test as appropriate. Multivariate analysis was used to assess for the independent association of MIS with primary outcomes.

Results: A total of 512 patients underwent ureteral reimplant, of which 59% underwent LUR and 41% underwent OUR. The median (IQR) age of LUR patients was 58 (43-71) years compared to 57 (45-70) years for OUR (p=0.39). Other baseline characteristics including race, BMI, ASA classification, and cardiovascular comorbidities were similar between LUR and OUR (all p>0.05). Patients who underwent LUR were more likely female (61% vs . 52%, p=0.04) and had a higher mean pre-op serum creatinine compared to patients who underwent OUR (1.3 +/- 1.0 vs . 1.1 +/- 0.5, p<0.01). Resident involvement was more likely with LUR compared to OUR (51% vs . 34%, p<0.01). LUR had a shorter hospitalization compared to OUR (1 (1-3) vs. 4 (3-6) days, p<0.01). LUR had lower overall complications (9% vs . 28%, p<0.01), especially with regard to transfusions (1% vs . 11%, p<0.01), superficial wound infections (0% vs . 5%, p<0.01) and urinary tract infections (5% vs . 11%, p=0.02). On multivariate analysis, laparoscopic approach was an independent predictor for lower overall complications (OR 0.23 [0.14-0.40], p<0.01), but did not predict need for readmission (OR 0.93 [0.44-1.97], p=0.88) or reoperation (OR 2.09 [0.90-4.82], p=0.09).

Conclusion: To our knowledge, this is the largest series assessing the impact of MIS for adult ureteral reimplantation. Data from NSQIP demonstrates that LUR results in decreased overall 30-day complications.
Poster #NM116
ADULT MALE ANTERIOR URETHRAL STRICTURES: PRACTICE PATTERNS IN THE MID-ATLANTIC REGION
Michael Consolo, DO¹; Kirin Syed, DO¹; Christopher Robison, DO¹; Jacob McFadden, MD²; Gordon Brown, DO¹; David Sussman, DO³; Bradley Figler, MD²
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Presented By: Michael Consolo

Introduction and Objectives: Although urethroplasty provides excellent long-term outcomes and high patient satisfaction, it continues to be an underused option in the management of anterior urethral strictures (AUSx) in men. Endoscopic approaches (e.g., urethrotomy or dilation) are associated with high recurrence, achieving only temporary palliation in most cases. Despite this, many urologists still adhere to the concept of a reconstructive ladder, wherein urethroplasty is considered only after multiple failed endoscopic treatments. In this study, we sought to examine region-specific practice patterns related to the management of men with AUSx and determine barriers to performing urethroplasty or urethroplasty referral.

Methods: An anonymous online survey was emailed to Mid-Atlantic AUA members. Six scenarios in which urethroplasty was the most appropriate treatment were presented. Primary outcome was recommendation for urethroplasty in ≥3 clinical scenarios. Multivariate logistic regression was used to identify factors associated with increased likelihood of urethroplasty.

Results: Of 670 members emailed, 109 (16%) completed the survey. Median years in practice was 16. Median number of AUSx treated over 3-months was 3. Most respondents received formal training in urethroplasty: 43 (49%) in residency, 5 (6%) in fellowship, and 10 (11%) in both. Most respondents (n=48, 55%) reported a urethroplasty surgeon in their practice, while 18 (20%) had a urethroplasty surgeon within 45 minutes of their primary practice location. In multivariate logistic regression, male AUSx volume was an important co-variate (OR 0.82, 95% CI 0.33 – 2.01), but the only co-variate that was associated with an increased likelihood of recommending urethroplasty in ≥3 scenarios was urethroplasty training (OR 4.31, 95% CI 1.62 – 11.46). Most members (68%) reported no barriers to referring patients for urethroplasty; the most common barriers cited were long distance to urethroplasty surgeon (N=13,15%) and concern about complications (N=8, 9%).

Conclusion: Our survey indicates that providers who received formal training in urethroplasty during residency or fellowship are more likely to recommend urethroplasty for strictures that are unlikely to respond favorably to endoscopic management. Our results underscore the need for clear, updated, evidence-based treatment guidelines to assist providers in the decision-making process.
Poster #NM117
SLING INCISION IS NOT ALWAYS SUFFICIENT
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Presented By: Himanshu Aggarwal

Introduction and Objectives: To assess the presentation and management of women with residual symptomatology after prior mid-urethral sling (MUS) incision.

Methods: Following IRB approval, a prospective MUS removal database was reviewed for non-neurogenic women who presented with continued symptoms despite a prior sling incision. Data collection included demographics, presenting symptomatology, management with sub-urethral sling excision, and outcomes. Data was reviewed by a neutral investigator not involved in patient care.

Results: From 2006-2013, ten patients were identified. Mean age was 59 ± 17 years. Median time from initial placement to sling incision was five months (range 2-78). Various treatments received, before presenting to us, included anticholinergics for UUI (3), neuromodulation (1), anticholinergics with pelvic floor therapy (1), anticholinergics with diagnostic lap (1). Evaluation included voiding cystourethrogram (9), translabial ultrasound (2) (Figure 1) and multichannel urodynamics (5). Indications for excision were obstruction (2), obstruction and pain (1), persistent vaginal pain/dyspareunia (4), recurrent vaginal extrusion/dyspareunia (2) and worsening urgency incontinence (1). Median time from incision to sling excision was 16 months (range 3-51). Median follow-up after mid-urethral sling removal was 17.5 months (range 8-45 months). Obstruction (3) and extrusion (2) were all cured. Vaginal pain and dyspareunia improved in 2 of 4 women and UUI improved in one. Three women had persistent SUI and 2 developed recurrent SUI. Two women were treated satisfactorily with bulking agents, and one with bulking agent and a fascial sling.

Conclusion: Sling incision may not always resolve LUTS. In a subset of women, sling excision may eventually be needed, with variable outcomes.
OUTCOMES AND COMPLICATION RATES FOR CYSTECTOMY AND URINARY DIVERSION FOR BENIGN INDICATIONS: A SURVIVAL ANALYSIS
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Presented By: Yahir Santiago-Lastra

Introduction and Objectives: Our primary aim is to identify the survival of patients who undergo cystectomy and urinary diversion for benign indications and to verify whether certain subgroups have a decreased extended survival.

Methods: We queried billing current procedure terminology (CPT) codes for patients who underwent cystectomy and urinary diversion. Inclusion criteria included patients who underwent cystectomy and urinary diversion by FPMRS division between 2007 and 2014. Exclusion criteria for the study were a concomitant diagnosis of muscle-invasive bladder cancer and absence of at least 30 days of postoperative follow-up. The Clavien-Dindo scale was used to grade 30 and 90 day complications based on severity. Survival data was obtained by querying the Federal Social Security Death Master File and the state's Death Index.

Results: 154 patients were included in the study. 110 patients (72.8%) underwent simple cystectomy. The average patient age was 58.4 years (range 21-85) and 83 patients (55%) were women. Median follow-up was 14.9 months. Seventy patients (47%) had a diagnosis of neurogenic bladder. Other diagnoses: radiation cystitis (N=50, 33.1%), interstitial cystitis/bladder pain syndrome (N=22, 14.9%). Adverse events were documented in 105 (66.8%) patients. Each patient was classified to their highest severity complication. Survival analysis demonstrated a one and five-year mortality of 88.4% and 77.2%, respectively. Univariate and multivariate modeling was used to compare the survival amongst the patient groups stratified by severity of complications. There was no significant difference in survival amongst the groups.

The findings in this study demonstrate no subgroups were identified for increased risk of mortality. The incidence of moderate and severe complications was high in this population, but major complications were not found to impact survival. These results should be interpreted with caution, however, as this cohort of patients was small and underpowered to detect differences in survival amongst the different groups.

Conclusion: This is the largest patient cohort assembled to look at extended survival outcomes for cystectomy in this specific patient population. Patients undergoing cystectomy for benign indications have a favorable one and five-year survival but experience a high rate of perioperative morbidity.
COMPARATIVE ANALYSIS OF HOSPITAL-BASED OUTCOMES IN PATIENTS UNDERGOING URINARY DIVERSION FOR BENIGN DISEASE
Charles Nottingham, MD, MS; Joseph Pariser, MD; Andrew Cohen, MD; Vignesh Packiam, MD; Sarah Faris, MD; Gregory Bales, MD
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Presented By: Charles Nottingham

Introduction and Objectives: Urinary diversion for benign etiologies is reserved for patients who have failed conservative measures. We used a national database to examine patient characteristics that may influence the type of diversion provided. Additionally, we studied the impact of the type of diversion on perioperative outcomes.

Methods: We used the National Inpatient Sample to identify patients undergoing ileal conduit diversion (ICD) and continent diversion (CD) from 2000-2012 with no diagnosis of bladder, urethral, or female genitourinary cancer. Demographics, hospital characteristics and outcomes were compared between diversion types after survey weighing. Categorical variables were compared with chi-squared tests using Rao-Scott correction, and continuous variables were compared with a z-test using a Wald correction. Multivariate logistic regression was performed to identify patient factors predicting receipt of CD, complications, and in-hospital mortality.

Results: We included a survey-weighted population of 18,421 and 10,711 patients who underwent ICD and CD, respectively. Patients undergoing ICD were older (mean age 60 vs. 52 years, p<0.01) and predominantly used Medicare insurance. Patients receiving CD had shorter length of stay (7 vs. 15 days, p<0.01), lower inflation-adjusted charges ($66,235 vs. 117,898, p<0.01), and lower rate of with discharge to a nursing facility (7% vs. 22%, p<0.01) than patients undergoing ICD. During their hospitalization, patients undergoing CD were less likely to have any complication (24% vs. 51%, p<0.01), blood transfusion (10% vs. 28%, p<0.01), and death (1% vs. 3%, p<0.01). On multivariate analysis, receipt of CD was associated with lower age, female sex, black and Hispanic race, lower Elixhauser comorbidity index, private insurance, neurogenic bladder, and spinal cord injury (all p<0.05), while GU tract fistulae and cystitis correlated with receipt of ICD (both p<0.05). Multivariate predictors of any complication included higher Elixhauser comorbidity index and receipt of ICD (both p<0.05).

Conclusion: We observed differential patient selection for patients undergoing ICD and CD for benign etiologies. Given the large observed difference in outcome measures such as length of stay and charges, further investigation into cost reduction and length of stay during urinary diversion could have a significant impact on national healthcare cost savings.
Poster #NM120  
**FOLEY OR FIX: COMPARATIVE ANALYSIS OF FOLEY, ABBREVIATED URETHROPLASTY, AND MOBILIZATION WITH PRIMARY URETHRAL ANASTOMOSIS AT THE TIME OF AUS EXPLANTATION FOR CUFF EROSION**  
Nathan Chertack, BS¹; Hemant Chaparala, BS¹; Kenneth Angermeier, MD²; Drogo Montague, MD²; Hadley Wood, MD²  
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Presented By: Nathan Chertack

**Introduction and Objectives:** Artificial urinary sphincter (AUS) cuff erosion requires explantation and the resulting urethral defect may be managed with Foley catheter placement, abbreviated urethroplasty (AU), or mobilization with primary urethral anastomosis (PA). We reviewed these treatment options to compare post-operative results, complications and probability of AUS reimplantation.

**Methods:** Medical records of patients treated for AUS cuff erosion from 2005-2015 were reviewed. Patients were divided into three groups based on urethral management: Foley catheter only, abbreviated urethroplasty, or mobilization with primary urethral anastomosis. Patient characteristics, operative times, outcomes, complications, and factors impacting AUS reimplantation were recorded and analyzed.

**Results:** Seventy-five patients with a median age of 77 years (72-83) were treated for AUS cuff erosion. Fifty-two underwent Foley catheter placement, 8 AU, and 15 PA. Mean follow-up was 13 months (0-106). Operative times for AUS explant-only procedures were longer for PA than Foley or AU (120 vs. 90, 120 vs. 76, p=0.033, p=0.012, respectively). Severe erosions were more common in the PA treatment group than Foley or AU (100% vs. 37%, 100% vs. 38%, p<0.001, p<0.001, respectively). Patients treated with AU had a higher number of prior explants per patient than either Foley or PA (1 vs. 0.4, 1 vs. 0.2, p<0.029, p<0.017, respectively). Severe erosions treated with a Foley were more likely to develop a stricture than mild erosions (38% vs. 5%, p=0.009). Tandem cuff patients treated with a Foley were more likely to develop a diverticulum than single cuff patients (33% vs. 4%, p=0.016). There was no difference in probability of reimplantation between PA and Foley or AU (63% vs. 69%, 63% vs. 33%, 0.748, 0.438, respectively).

**Conclusion:** Foley catheter placement alone may represent suboptimal management for severe or tandem cuff erosions due to the increased risk of subsequent urethral stricture or diverticulum. The likelihood of AUS reimplantation does not appear to be affected by severity of erosion using the reported techniques for urethral management. At the time of AUS explantation for cuff erosion, management of the urethral defect should be determined by individual patient characteristics and surgeon experience.
Poster #NM121
A TERTIARY EXPERIENCE OF ILEAL-URETER SUBSTITUTION: CONTEMPORARY INDICATIONS AND OUTCOMES
Sachin Malde, MBBS, FRCS; Marco Spilotros, MD; Mahreen Pakzad, MBBS, FRCS; Rizwan Hamid, MD, FRCS; Julian Shah, MD, FRCS; Tamsin Greenwell, MD, FRCS; Jeremy Ockrim, MD, BSc (Hons), FRCS
Institute of Urology at UCLH, London, UK
Presented By: Sachin Malde

Introduction and Objectives: Complex ureteric stricture disease requiring ureteric replacement is rare in contemporary Western urological practice. We report our medium-term outcomes with ileal-ureter substitution for long segment ureteric stricture disease.

Methods: All patients who had undergone ureteric reconstructive surgery using small bowel over a five-year period between 2010 and 2015 were identified. Data was collected regarding aetiology of ureteric stricture, prior surgery or radiotherapy, baseline renal function, and comorbidity. Post-operative complications were recorded using the Clavien Dindo classification, and overall outcome and need for further intervention was documented.

Results: Nine patients underwent ileal-ureter substitution with four having bilateral ileal interposition. Median age was 48 (38- 62) with a median follow-up of 17 months (1- 40 months). Indications for ileal-ureter substitution were ischaemic fibrosis following previous abdomino-pelvic surgery in four patients, radiotherapy-istrictures in three, idiopathic retroperitoneal fibrosis in one and ureteric avulsion following endourological stone surgery in one. Simple untailored ileal segments using single or U loop ileal lengths and refluxing single cystostomy anastomoses were employed in all cases. One case of ureteric anastomotic leak and re-stricture required re-intervention, but all others had favorable outcomes with no stricture and no requirement for further intervention. Two patients reported recurrent cystitis following surgery but there was no deterioration in either bladder or renal function in any patient, and no metabolic complications reported.

Conclusion: Ileal-ureter substitution surgery is a valuable option for selected patients with complex, difficult-to-treat ureteric defects that cannot be bridged by other methods. Simple onlay techniques do not seem to affect bladder, renal or metabolic function; and avoiding the extra complexity of tailored and tunneled anastomoses may reduce the potential morbidity and re-intervention rate in patients with challenging surgical fields.
Poster #NM122
PERIOPERATIVE OUTCOMES OF VESICOVAGINAL FISTULA REPAIR: VAGINAL VERSUS ABDOMINAL SURGICAL APPROACH
Deborah Hess, MD¹; Valary Raup, MD¹; Julian Hanske, MD²; Manuel Ozambela, BS¹; Marianne Schmid, MD³; Portia Thurmond, MD⁴; Briony Varda, MD¹; Quoc-Dien Trinh, MD¹; Jairam Eswara, MD¹
¹Brigham and Women's Hospital, Boston, MA; ²University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ³Ruhr-University Bochum, Herne, Germany; ⁴VA Boston Healthcare System, West Roxbury, MA
Presented By: Deborah Hess

Introduction and Objectives: To assess the perioperative outcomes of abdominal versus transvaginal approach to vesicovaginal fistula (VVF) repair using a large multi-institutional prospectively collected database.

Methods: Patients were identified using the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) Participant User Files (2005-2012) and Current Procedural Terminology (CPT) codes for VVF repair. Results were stratified according to abdominal (51900) versus vaginal (57320, 57330) approach. Propensity score weighted bivariate analyses were performed to assess the impact of surgical approach on postoperative complications, readmission rates, prolonged operative time (pOT) and prolonged length of stay (pLOS), with pOT and pLOS representing greater than 75th percentile.

Results: Of the 138 VVF repairs performed during the study period, 53 were performed via an abdominal approach (38.4%) and 85 via a vaginal approach (61.1%). After propensity score weighting, abdominal approach was associated with both pOT (p<0.0001) and pLOS (p<0.0001). The overall postoperative complication rate was 9.7%, with the most common complication being urinary tract infection (UTI). Repairs via a vaginal approach had a 6.9% complication rate, while repairs via an abdominal approach had a 14.1% complication rate, which was not statistically different (p=0.164).

Conclusion: When compared to the vaginal approach, the abdominal approach to VVF repair was associated with pOT and pLOS. However, there was no difference between the rates of perioperative complications. These results suggest that, for amenable VVF, a vaginal approach may be preferred to an abdominal approach.
FULL MEMBER: A (MD, or DO) who has completed residency training and demonstrates strong interest in the field. A PhD or basic science researcher recognized within the field or Physicians in fellowship training programs related to the field. The individual must submit two letters of recommendation from Full members. The admission period is rolling. This category includes voting rights on society issues.

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Degree(s) ___________________________________________ Preferred Mailing Address □ Office □ Home

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Required for Full Member applicants only: List two Full Members of the society who will forward reference letters on your behalf: Please note it is the applicant’s responsibility to have letters of recommendation submitted to complete application.

1) ___________________________________________ 2) ___________________________________________

Please send this application along with your CV to: Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction

Two Woodfield Lake

1100 East Woodfield Road, Suite 350

Schaumburg, IL 60173

Phone: (847) 517-7225

Email: info@sufuorg.com

Signature of Applicant ___________________________ Date __________________________

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## Alphabetical Index of Presenters

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