MANAGEMENT OF STRESS URINARY INCONTINENCE

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Disclosures
- None

Goals
- Review the epidemiology and causes of stress urinary incontinence (SUI) in women
- Discuss appropriate diagnostic tools for SUI
- Learn about treatment options for SUI

Urinary Incontinence
- Accidental leakage of urine
- Common medical condition
- Significant Quality of Life factor
## Bladder Function

### 3 Ways to Void:
1. Valsalva
2. Detrusor Contraction
3. Urethral Relaxation

## Urinary Incontinence

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3. Urethral Relaxation

### 3 Ways to Leak:
1. Valsalva (Stress Incontinence)
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### 3 Ways to Leak:
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2. Detrusor Contraction (Overactive Bladder)
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Urinary Incontinence

3 Ways to Void:
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2. Detrusor Contraction
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3 Ways to Leak:
1. Valsalva (Stress Incontinence)
2. Detrusor Contraction (Overactive Bladder)
3. Urethral Relaxation (rare)

Function: Bladder and Urethra

Dysfunction: Bladder and Urethra

SUI Symptoms

- Stress incontinence:
  - The complaint of involuntary leakage of urine on effort or exertion, eg. with sneezing or coughing (valsalva)
SUI Causes?

1994 DeLancey and Ashton-Miller ‘Hammock Theory’:
- Support and elevation at the bladder neck maintains continence
- Injury to the levator muscles and pubocervical support tissues led to SUI


SUI Causes?

1990 Petros and Ulmsten ‘Integral Theory’
- Urethra opened and closed by interaction of vaginal wall, ligaments and muscle around the urethra
- Laxity in the tissues leaves the urethra open when these forces attempt to close it
- Midurethral sling developed to reinforce the high pressure zone of the middle urethra


SUI Causes?

2008 DeLancey
- Study: Women with SUI vs. controls
- Maximum urethral closing pressure was lower in SUI
- Resting and contracting urethral axis (bladder neck) significantly lower in SUI
- Levator ani strength and MRI imaged defects were similar
- Concluded that urethral function is most strongly associated with SUI.


SUI Causes?

- Lack of support or squeeze on the urethra

- Not bladder

- Not prolapse
  - Treatment of prolapse can → stress incontinence¹

Post-Void Dribbling

Treatment = Double Voiding
1. Relax to void
2. Stand and count to 10
3. Sit briefly for drops

Urinary Incontinence Epidemiology

- Prevalence
  - Urinary Incontinence in the past year\(^1\): 50%

- Bother (EPIQ questionnaire)
  - Stress incontinence\(^2\): 15%
  - Urgency and urge incontinence\(^2\): 13%

- Care Seeking\(^3\): 61%

\(^1\)R Dooley Y, et al. Urinary Incontinence Prevalence: Results From the National Health and Nutrition Examination Survey. J Urol 2008; 179, 656-661


Why do women develop SUI?

Risk Factors
- Genetics (Family History)
- Age
- Pregnancy and Childbirth
- Obesity
- Chronic straining (cough, constipation, smoking)
- Oral estrogen

Wood LN, Anger JT. Urinary incontinence in women. BMJ. 2014 Sep 15;349:g4531

Urinary Incontinence Racial Differences

Incontinence Impact:
Same severity of incontinence is more bothersome to black women than white women.
Possibly due to racial disparities in knowledge of risk factors and treatment options for incontinence.
Or due to low levels of knowledge about UI and a reluctance to discuss symptoms with health care professionals.


Urinary Incontinence Racial Differences by Race


SUI Age Differences

SUI Age Differences

Young women and incontinence:

- Healthy nulliparous women 20 – 45yo
- 25% of regularly physically active and 14% of controls reported UI with effort

Screening

“Some women are bothered by urine leakage or going to the bathroom frequently – is this a concern for you?”

Evaluation and Diagnosis

- Evaluate for Urinary infection (UA +/- Cx)
- Ask
  - UI associated with physical activity such as coughing, sneezing, lifting or exercise
  - Sensitivity = 0.86 Specificity = 0.6
- Physical Exam
  - Consider uncommon alternatives eg. urethral diverticulum, vaginal discharge

Evaluation and Diagnosis: Pre-op

- Stress Test
  - Yes / No leak
  - Delay or prolonged leak suggests Stress Induced Detrusor Overactivity
- Post-void residual
- Urethral Mobility / Q-tip test?
  - OR = 1.9 For failure of MUS
- Urodynamics?
  - Not if uncomplicated stress-predominant urinary incontinence


### Stress Incontinence

#### Treatments

- **Pelvic Floor Exercises**
  - Daily Pelvic Floor exercises **Strengthen and Control** pelvic floor muscles
  - Pelvic Floor Strength and Control at the proper time **prevents incontinence**

- **Pelvic Floor Muscle Exercises (Kegels)**
  - Cochrane: Women with SUI who received treatment (Kegels)
    - 8 times more likely to report cure (56.1% v 6.0%)
    - 17 times more likely to report cure/improvement (55% v 3.2%)
    - Minimal adverse events
  - Test squeeze and give feedback with every pelvic exam


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### Weight Loss


<table>
<thead>
<tr>
<th>Stress Incontinence</th>
<th>Weight-Loss Group (8% wt. at 6m)</th>
<th>Control Group (2% wt. at 6m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline — SUI episodes/wk</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>6 Mo — SUI episodes/wk</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>% Change</td>
<td>−58%</td>
<td>−33%</td>
</tr>
</tbody>
</table>

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Pessaries

What is a pessary?
Physical device in the vagina

*Note: a tampon may treat or improve SUI!*


  - 35% denied bothersome Sx at 12 month
  - 50% satisfied with treatment

Stress Incontinence Treatments
(Support or squeeze the urethra)

Impressa by Poise
Stress Incontinence Treatments (Support or squeeze the urethra)

Who should use a pessary?

Anyone who wants it
  - To avoid surgery
  - To treat symptoms while waiting for surgery

So offer them to everyone

Silicone Pessaries

Contraindications
  - Active infection
  - Non-compliance or inability to follow-up
How do I fit it?

- Whatever way is comfortable and effective for the patient
- Can use more than 1

After fitting

- Pessaries last for years (decades?)
- May need to change due to change in vagina shape / size
- May stain at corners – this is OK
- If cracks or feels rough, change for a new one

What about?

Vaginal bleeding
- Common with fitting and manipulation
- Evaluate new vaginal bleeding as you would without pessary

Erosions (These will happen, it’s OK)
- Treat with vaginal E2 and check in 1 month, many resolve
- Biopsy if persistent
- Pessary checks (more frequently?) confirm it’s not worsening

Vaginal Infections
- Discharge is physiologic
  - Check/remove more frequently
  - May use estrogen or Trimo-San

UTIs
- Likely most significant risk factor is age, not pessary
- Manage like recurrent UTIs (UA/Cx, vaginal E2, cranberry, timed voids)
Operations for Urinary Incontinence

- Traditional (urethrovesical) slings
- Retropubic colposuspension
- Urethral Bulking
  - Mid-urethral Slings:
    - Retropubic (1995)
    - Transobturator (2001)
    - “Mini Slings” (2006)

Urethral Bulking


- 14 RCTs including urethral bulking in at least one arm
- Heterogeneity in outcomes so not able to compare results
- Urinary retention was the main adverse event in most studies

Urethral bulking


- Short term (<6m) improvement 75%  cure 43% (12 and 13 studies respectively)
- Long term (>18m) improvement 64%  cure 36% (10 and 11 studies respectively)

- Median reinjection rate (to optimize outcome) = 30 %

Mid-Urethral Slings:

- Retropubic (RP)
- Transobturator (TO)
- “Minislings”
AUGS and SUFU Position Statement: Mesh Midurethral Slings for Stress Urinary Incontinence

- Updated 6/2016
- Supported by AAGL, ACOG, NAFC, SGS, WHF

“The purpose of this position statement ... is to support the use of the midurethral sling in the surgical management of stress urinary incontinence, the type of urine leakage generally associated with coughing, laughing and sneezing.”

Conclusion

“One of the unintended consequences of this polypropylene mesh controversy has been to keep women from receiving any treatment for SUI. This procedure is probably the most important advancement in the treatment of stress urinary incontinence in the last 50 years and has the full support of our organizations which are dedicated to improving the lives of women with urinary incontinence.”

Mid-Urethral Slings


- Mean long-term subjective cure rate across both groups (714 women) was 84.3%
- Short, medium and long term (>5 years) follow up showed no significant difference between TO and RP


- TO vs RP meta analyses favored retropubic slings but not significant
  - Objective cure (OR, 1.16; 95% CI, 0.93-1.45)
  - Subjective cure (OR, 1.17; 95% CI, 0.91-1.51)


- 8671 women with an index surgery for SUI followed for 5 years
- Reoperation for RP = 6%
- Reoperation for TO = 9% (significantly higher hazard ratio)
Mini-Slings
Schimpf et al SR and MA:
• Full length slings had better subjective and objective outcomes compared to mini-slings
• Adverse Events similar to TO (OAB 5%, mesh exposure 2%) but with less groin pain

• Majority of studies performed with one inadequate sling
  • same as Schimpf. Has been removed from market
  • Unable to perform reliable comparison

Conclusions Mid-Urethral Slings
• TO and RP have similar short-term efficacy
• but RP may be more effective long term
• Mini-sling comparisons are still developing

Summary
• SUI is common
• A ‘urethra problem’
• Simple to diagnose
  • Symptoms
  • Stress test
• Treated with urethral support (mostly)
  • Kegels
  • Weight loss
  • Pessaries
  • Urethral Bulking
  • Mid-Urethral Slings

Future treatment for SUI
• Intravesical Balloon
• Cell Based Therapy
Thank You

Questions?