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Diagnosis and Management of Urinary Incontinence

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Presenter Disclosure Information

The following relationships exist related to this presentation:

- Mohit Khera, MD, MBA, MPH: Consultant for American Medical Systems; Auxilium; and Coloplast.

Off-Label/Investigational Discussion

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Diagnosis and Management of Urinary Incontinence

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Learning Objectives

- Apply diagnostic and treatment strategies for stress incontinence
- Apply diagnostic and treatment strategies for urge incontinence
- Evaluate effective treatment options for refractory urge and stress incontinence

Prevalence of Overactive Bladder (OAB) in the US

- Overall, 16.6% had symptoms of OAB
- Prevalence of OAB increased with age
- Women more likely to be incontinent

Age (years)	Men (%)	Women (%)
18-24	9	5
25-34	7	7
35-44	12	10
45-54	19	23
55-64	26	23
65-74	30	32
75+	35	30

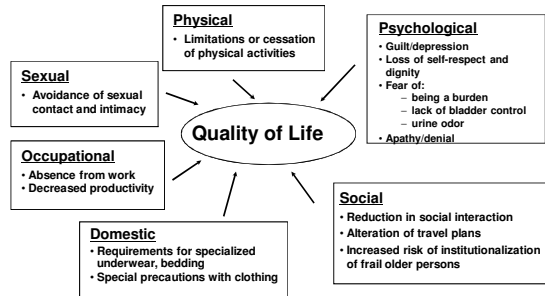
Adapted from Stewart W et al. *World J Urol.* 2003;20:327-336.

Incontinence - Underreported

- Less than half of patients with incontinence report it to their health care provider
- Reasons for not reporting incontinence:
 - Embarrassment
 - Low expectation for therapy
 - “Normal” part of aging
 - Availability of absorbent products/pads

Erdem N, Chu FM. *Am J Med.* Mar 2006;119(3 Suppl 1):29-36

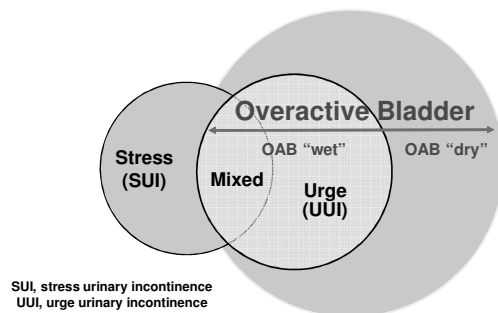
Impact of Urinary Incontinence on Quality of Life



Types of Incontinence

1. **Overflow incontinence**
2. **Urge incontinence (overactive bladder)**
 - Overwhelming urge to urinate results in leakage
 - Unintended detrusor activity
3. **Stress incontinence**
 - Sudden involuntary loss of urine associated with increase in intra-abdominal pressure (cough, sneeze)
 - Failure of sphincter - intrinsic or extrinsic factors
4. **Mixed incontinence**

Different Degrees of Incontinence



Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.
Figure adapted from Wein AJ, et al. *J Urol*. 2006;175(3 pt 2):S5-S10.

Differential Diagnosis: Overactive Bladder, Stress Incontinence, and Mixed Symptoms

Medical History and Physical Examination

Symptom Assessment

Symptoms	Overactive bladder	Stress incontinence	Mixed symptoms
Urgency (strong, sudden desire to void)	Yes	No	Yes
Frequency with urgency (>8 times/24 h)	Yes	No	Yes
Leaking during physical activity, eg, coughing, sneezing, lifting, etc.	No	Yes	Yes
Amount of urinary leakage with each episode of incontinence	Large (if present)	Small	Variable
Ability to reach the toilet in time following an urge to void	Often no	Yes	Variable
Waking to pass urine at night	Usually	Seldom	Maybe

Abrams P, Wein AJ. *The Overactive Bladder—A Widespread and Treatable Condition*. 1998.

History

- **How long? How old when started?**
- **When does leakage occur?**
 - Day and night, wet pads at night suggest OAB
 - Activity related?
- **How much (volume)? Degree of bother?**
- **Urgency?**
 - Suppressible suggests stress urinary incontinence
 - Not suppressible (urge incontinence) suggests OAB
- **Prior surgeries?**
- **Other: fluid intake, UTI's, pain, hematuria, LE swelling, prolapse, medications?**

Urinary Incontinence Evaluation History - Other Causes of Symptoms

- **Local Pathology**
 - Infection
 - Bladder stones
 - Bladder tumor
 - Interstitial cystitis
 - Outlet obstruction
- **Metabolic**
 - Diabetes
 - Polydipsia
- **Medications**
 - Diuretics
 - Antidepressants
 - Antihypertensives
 - Hypnotics & sedatives
 - Analgesics & narcotics
- **Other Factors**
 - Pregnancy
 - Psychological
 - Estrogen deficiency

OAB Symptoms May Be Worsened by..

Sedatives	Confusion, secondary incontinence
Alcohol, caffeine	Diuresis
Anticholinergics other than antimuscarinics	Impair detrusor contractility Voiding difficulty Overflow incontinence
α-Agonists	Increase outlet resistance, voiding difficulty
β-Blockers	Decrease urethral closure Stress incontinence
Calcium-channel blockers	Reduce bladder smooth muscle contractility
ACE inhibitors	Induce cough, stress urinary incontinence

Lavelle JP, et al. *Am J Med*. 2006;119:375-405.
DuBeau CE. *J Urol*. 2006;175:S11-S15. Gill, S, et al. *Arch Intern Med*. 2005;165:808-813.

Physical Examination

- **Abdomen**
 - Masses: palpable bladder, etc.
- **Pelvis/perineum**
 - External genitalia: atrophic vaginitis
- **vaginal**
 - Prolapse (assoc. 50% of SUI patients)
 - GYN malignancy, fistula
- **Rectal:**
 - tone, masses, teach Kegels during exam
 - prostate
- **Neurological (reflexes, LE's, sensory, motor)**

Other studies:

- **Urine Analysis:**
 - hematuria, pyuria, glucosuria, etc.
- **Post-void residual: ultrasound, catheter**
- **Voiding diary**
- **Urodynamics**
- **Cystoscopy**

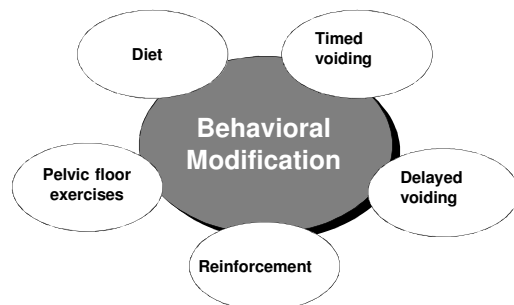
Urodynamics

- **Urodynamics: pressure test of bladder to document when leakage occurs, neurologic integrity of bladder**
 - Useful in complex cases
 - When diagnosis may change treatment
 - Not required in all cases
 - Specialized center of excellence

Treatment for Overactive Bladder

- **Pads**
- **Behavioral therapy**
- **Medications**
- **Neuromodulation**
- **Botulinum toxin**
- **Surgery**

Behavioral Modification



Dietary/Lifestyle Modification

- Reduce daytime and nighttime fluids¹
- Eliminate bladder irritants¹
 - Caffeine, carbonated beverages, alcohol, nicotine
- Evaluate and modify bowel habits¹
 - Add fiber to diet
- Weight loss
 - Obesity increases intra-abdominal pressure²
 - Leads to weakening of pelvic floor innervation and musculature²
 - Weight reduction of 5% can reduce severity of urinary incontinence and its effects on QoL in obese women³

¹ Burgio KL. *Urology*. 2002;60(5 Suppl 1):72-76.

² Osborn DJ, et al. *Urology*. 2013 Aug 21. [Epub ahead of print]

³ Auwad W, et al. *Int Urogynecol J Pelvic Floor Dysfunct*. 2008;19:1251-1259.

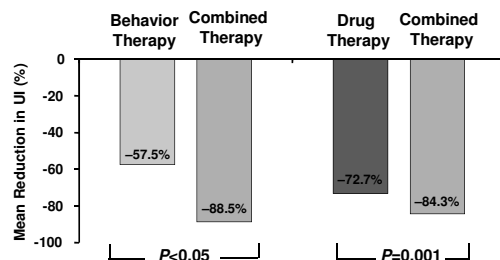
Pelvic Floor Muscle Exercises

- Daily regimen of Kegel exercises strengthens pelvic floor muscles, improves bladder stability¹
 - Tighten/contract pelvic floor muscles, hold for 5 s, then relax for 5 s. Work up to contracting for 10 s, relaxing for 10 s
 - Aim for ≥ 3 sets of 10 repetitions daily
- Used primarily in patients with SUI, but may be beneficial in mixed incontinence, OAB¹
- Effect greatest in younger women (40s–50s) in supervised program for ≥3 mo²
- Addition of biofeedback helps teach patients how to identify and contract pelvic floor muscles¹

¹ Burgio KL, et al. *Ann Intern Med*. 1985;103:507-515.

² Hay-Smith EJ, et al. *Cochrane Database Syst Rev*. 2006;25(1):CD005654.

Additive Effect of Combining Behavior and Drug Therapies



Burgio KL, et al. *J Am Geriatr Soc*. 2000;48:370-374.

Urge Incontinence: Pharmacologic Therapy

Oral Antimuscarinics

- Thought to suppress bladder afferent activity by inhibiting effects of acetylcholine at postjunctional muscarinic receptors on
 - Detrusor smooth muscle¹
 - Other structures in the bladder wall such as the urothelium, interstitial cells, and afferent nerves¹
- Also affect muscarinic receptors throughout the body (eg, salivary gland, colon, ciliary smooth muscle), causing common adverse events (AEs) that limit clinical use²
 - Common AEs: dry mouth, constipation, blurred vision
 - Patients with dry mouth often increase fluid intake, worsening OAB

¹ Yamaguchi O. *Int J Urol*. 2013;20:28-39.

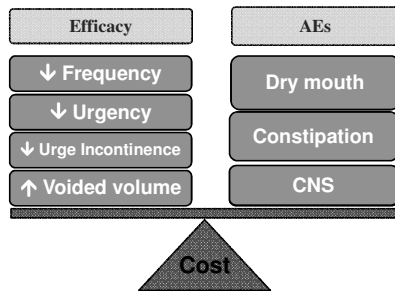
² Andersson KE. *Discov Med*. 2009;8:118-124.

Oral Antimuscarinics

- Do not use in patients with narrow-angle glaucoma unless approved by treating ophthalmologist
- Use caution in prescribing antimuscarinics in patients with impaired gastric emptying or history of urinary retention, those using other medications with anticholinergic properties, and in frail patients

Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.

Antimuscarinics: A Balancing Act



Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.

Patient Adherence is a BIG Problem

- Database of 29,369 women aged ≥ 18 yo prescribed anticholinergic medications¹
 - Median time to discontinuation: 4.8 mo
 - 58% still on medication at 6 mo, <23% at 1 year
- National Family Opinion Survey² (n=5392 on OAB medication in past year)
 - 1322 stopped medication
 - Reasons for stopping (89%)
 - Unmet expectations
 - Side effects
 - Switched medications

¹ Gopal M et al. *Obstet Gynecol*. 2006;112:1311-1318.
² Benner JS et al. *BJU Int*. 2010;105:1276-1282.

Strategies to Reduce AEs

- Dose reduction (when dosing options available) can provide relief from AEs while retaining some therapeutic effects
- Try alternate agent that the patient may tolerate better
- Transdermal patch or gel may also be offered
- Older patients may metabolize drugs differently, so start with minimal dose, increase if it is tolerated well

Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.

Beta 3 Agonist for OAB

- MOA distinct from antimuscarinics²
 - Detrusor smooth muscle relaxation and increased bladder stability during filling/storage via direct activation of $\beta 3$ -adrenoceptors
 - Increases bladder capacity without change in micturition pressure or post-void residual volume³

¹ Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.
² Murphy AM et al. *Int Urogynecol J*. 2013;24:5-13.
³ Hood B, Andersson K-E. *Int J Urol*. 2013;20:21-27.

Beta 3 Agonist for OAB

- Mirabegron approved by FDA, June 2012
 - 25 mg, 50 mg doses
- Phase 2 and 3 trials support safety and efficacy¹⁻⁵
 - Consistently reduced mean number of micturitions and incontinence episodes per 24 h
 - Common AEs similar across all treatment and placebo groups
 - Hypertension, dry mouth, headache, UTI, nasopharyngitis
- Potential benefits: no antimuscarinic AEs, no voiding dysfunction/retention in men⁶
- Value as primary or add-on therapy⁶

¹ Hood B, Andersson K-E. *Int J Urol*. 2013;20:21-27.
² Chapple CR et al. *Eur Urol*. 2008;7(Suppl):239.
Abstract 674.
³ Chapple C et al. *Eur Urol*. 2010(Suppl):9-249.
Abstract 774.

⁴ Nitti V, et al. *Eur Urol Suppl*. 2011;10:278.
⁵ Khullar V, et al. *Eur Urol*. 2011;10(Suppl 2):278.
Abstract 985.
⁶ Murphy AM, et al. *Int Urogynecol J*. 2013;24:5-13.

Options for Refractory Urge Incontinence Patients / Referral to Urologist

Third-line treatments

- Peripheral tibial nerve stimulation (PTNS)
- Detrusor neuromodulation (onabotulinumtoxinA)
 - Patients must be able and willing to return for frequent post-void residual evaluation and perform self-catheterization if necessary
- Sacral neuromodulation
 - Patients with severe refractory OAB willing to undergo surgery

Additional treatments

- Indwelling catheters
 - Not recommended for OAB because of adverse risk/benefit balance except as a last resort in selected patients
- Augmentation cystoplasty or urinary diversion
 - Used in rare cases for severe, refractory, complicated OAB

Gormley EA, et al. *J Urol*. 2012;188(6 Suppl):2455-2463.

Management of Stress Incontinence (SUI)

- Pads and absorbent products
- Behavioral therapy
- Medications
- Surgery
 - Injectables
 - Slings

Transvaginal mesh

- Ideal mesh- inert, resistant to infection permanent with no risk of erosion, becomes incorporated into surrounding tissue.
- Materials used- polypropylene, polyester, PTFE, polyamide
- Material, structure and filament of the mesh determine the size of the interstices and pores
 - Knitted, monofilament meshes w interstices, micropore size >10 microns and pore size >75 microns allow for vascular, fibroblast and collagen fiber ingrowth

Complications of TV Mesh Placement

- Bladder perforation
- Hemorrhage
- Bowel perforation
- De novo urgency and obstruction
- Neurologic symptoms
- Infection
- Chronic pelvic pain
- Urinary retention
- Mesh erosion



Recent Update from US-FDA

- In particular, the literature review revealed that: Mesh used in transvaginal pelvic organ prolapse (POP) repair introduces risks not present in traditional non-mesh surgery for POP repair.
- Mesh placed abdominally for POP repair appears to result in lower rates of mesh complications compared to transvaginal POP surgery with mesh.
- There is no evidence that transvaginal repair to support the top of the vagina (apical repair) or the back wall of the vagina (posterior repair) with mesh provides any added benefit compared to traditional surgery without mesh.
- While transvaginal surgical repair to correct weakened tissue between the bladder and vagina (anterior repair) with mesh augmentation may provide an anatomic benefit compared to traditional POP repair without mesh, this anatomic benefit may not result in better symptomatic results.

Diagnosing Stress Incontinence in Men

- History
 - How many pads? Pad weight?
 - Level of bother?
 - Sexual dysfunction?
- Urodynamics
- Cystoscopy

Bulking Agents

- Off-label use
- Most minimally invasive
- Bovine Collagen
- Silicone microimplants
- Need for multiple injections
- Deterioration of effect over time
- Low cure rates

Novel techniques/material

- Stem cell therapy
 - Muscle or adipose derived as a regenerative tissue
- Adipose derived mesenchymal stromal cell

Summary: Urinary Incontinence

- Incontinence affects up to 43% of women and 27% of men with the prevalence increasing with age
 - Estimated 46 million Americans \geq age 40
- Incontinence can significantly impact a patient's quality of life
- Behavioral modification is very useful as monotherapy or as concomitant therapy for treating both stress and urge incontinence
- A detailed history is the most important aspect of making the diagnosis

Summary: Urinary Incontinence

- Overactive bladder:
 - Medications, timed voiding, decrease fluids, Kegel exercises
 - Refractory patients should be referred for PTNS, bladder botox injections, or surgery
- Stress incontinence:
 - Mild cases: Kegels and behavioral modification
 - Injection therapy
 - Surgery
 - Injections
 - Sling/artificial urinary sphincter