UPDATES IN OVERACTIVE BLADDER

Christy Wilson PA-C, MPAS

Wellstar

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DISCLOSURE

• I have no relevant relationships with ineligible companies to disclose within the past 24 months

OBJECTIVES

- At the conclusion of this session participants should be able to:
 - Definition of OAB/ Urge urinary incontinence
 - Discuss signs and symptoms of OAB and how to recognize it in clinical practice
 - Discuss Treatment options
 - Behavioral
 - Medications
 - Procedures / surgical
 - Beers Criteria and why it is important to known when treating OAB
 - Case Studies for review

OVERACTIVE BLADDER

- "urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of UTI or other obvious pathology"
- Self limiting
- Clinical diagnosis

IUGA (International Urogynecological Association) and ICA (International Continence Society)

- Prevalence up to 27% men / 47% women (AUA guidelines 2019)
- Pathophysiology: abnormal urothelium and suburothelial signaling that leads to pathologic sensation of urgency

OVERACTIVE BLADDER (OAB)

Definition

- Syndrome described as having symptoms of urgency to urinate with or without incontinence, nocturia, and urinary frequency
- NOT a disease but a group of symptoms
- Different from stress urinary incontinence (SUI)
- Can be associated with Urge Urinary Incontinence (UUI)



Lukacz, et al. Urgency urinary incontience/overactive bladder in females: Treatment; Up-to-date Accessed 2/14/2022. https://www.urologyhealth.org/urology-a-z/o/overactive-bladder-(oab)

URGE URINARY INCONTINENCE

Definition

- Urge to void immediately and often associated with involuntary urine leakage
- Temporary or persistent
- Quality of life



Name: _____ Date: ____ MRN #____

OAB-q short form symptom bother

This questionnaire asks about how much you have been bothered by selected bladder symptoms during the past 4 weeks. Please place a \checkmark or \times in the box that best describes the extent to which you were bothered by each symptom during the past 4 weeks. There are no right or wrong answers. Please be sure to answer every question.

During the past 4 weeks, how bothered were you by		Not at all	A little bit	Some- what	Quite a bit	A great deal	A very great deal
1. 4	An uncomfortable urge to urinate?		2	3	4	5	6
	A sudden urge to urinate with little or no warning?		2	3		5	6
	Accidental loss of small amounts of urine?		2	3	4	5	6
4. 1	Nighttime urination?		2	3	4	5	6
	Waking up at night because you had to urinate?		2	3	4	5	6
	Urine loss associated with a strong desire to urinate?		2	3		5	6

QUESTIONNAIRE FOR PATIENTS

US English OAB-q SF, ver 1.0, 2004

SYMPTOMS

- Urgency with urination
- Urge urinary incontinence (Wet OAB)
- Difficult to control urination
- Frequency of urination usually $> 8 \times in 24$ hr period
- Nocturia 2+ per night
- Worsens with age
- Prevention: healthy weight / exercise / limit caffeine and etoh / no smoking / pelvic floor exercises

- Mrs LUTs is a 57 yo female with known hx of depression and generalized anxiety disorder who is a mother of 2 kids.
 - Smokes ¹/₂ ppd but trying to cut back
 - 2 vaginal deliveries Full Term
 - Medications: escitalopram / clonazepam
- CC: Urge urinary incontinence worsening x 3 years with rare SUI (stress urinary incontinence) only when she laughs a lot
- OAB questionnaire
- UA micro negative / PVR 2 ml / cystoscopy normal without evidence of pelvic organ prolapse



- Discussed behavioral modifications / Bladder training
- Healthy bladder diet
- She is NOT interested in pelvic floor PT
- Insists she needs something because she "CANNOT LIVE LIKE THIS"
- What to do?



- Treatment:
 - Healthy bladder diet / pelvic floor exercises
 - Rx Virbegron 75 mg daily
- Mrs LUTS calls the clinic stating the medication was \$400 and she cannot afford d/t her shopping habits
- Rx tropism ER 60 mg daily
 - Take on empty stomach
 - FU in 6-8 weeks



- Follow up appointment
 - PVR 0 ml
 - Some improvement in urgency / frequency / leakage
 - Continue to encourage behavioral modifications
 - Next steps



OAB WORKUP

- Voiding Diary
- Urinalysis / Urine cx
- No role for urodynamic study / cystoscopy / imaging in the initial workup

FIRST LINE THERAPY

- Behavioral Modifications
 - Diet
 - Bladder Training (change bladder habits)
 - Pelvic Floor Exercises / referral to PT
 - Weight loss
 - vaginal atrophy topical estrogen cream
 - Timeframe 6-12 weeks

SECOND LINE THERAPY

- Medications
 - Anti-muscarinic agents
 - ER (extended-release medications preferred)
 - Higher risk of dementia
 - Beta 3 adrenergic agonists
 - \$\$\$
 - COMBO
 - Takes up to 12 weeks to notice full effects
 - Risk of urinary retention, monitor with PVR

PHARMACOLOGICAL TREATMENTS

• Anti-muscarinic agents

- MOA stimulates acetylcholine to reduce smooth muscle contraction in the bladder
- Increase bladder capacity / decrease urgency
- Generic options / cheaper
- Can cause cognitive dysfunction
- Side Effects: dry mouth and eyes, constipation
- Contraindications
- Examples: trospium / darifenacin

- Beta 3 adrenergic agonists
 - Mirabegron * (risk of HTN)
 - Vibegron
 - MOA smooth muscle relaxation in the bladder
 - Less side effects compared to antimuscarinic agents
 - \$\$\$
 - Contraindications
 - Uncontrolled HTN
 - Child Pugh class B / ESRD GFR < 30
 - Flecainide / propafenone cannot take 50

Liu, Bonnie et al. Drug Therapy for Overactive Bladder. AUA Update Series 2021, Vol 40 page 193. mg dose

ANTI-MUSCARINIC AGENTS

• Oxybutynin / Tolterodine

- Comes in immediate or extended release
 - Prefer extended release to min. SE
- Cheap / generic
- Not well tolerated
- Oxybutynin
 - Highly lipophilic / crosses the blood brain barrier resulting in CNS adverse effects
 - Can be given transdermal or ER dosing which decreases SE
 - Avoid in elderly

AUA UPDATE SERIES 2021 OAB

Trospium

- less likely to pass the blood brain barrier / take at least ONE hour prior to food
- Food significantly decreases bioavailability
- M2 / M3
- No need to adjust for hepatic dz / only AM NOT metabolized by CYp3A4
- Study UK patients who use AM (anti-musarinic agents) have 20% increased risk of Dementia in the future

AUA UPDATE SERIES 2021 OAB

- Combo Beta 3 adrenergic agonists and AM drugs
 - Improvements in volume voided / frequency / urgency and QOL
- Role of PDE5 inhibitors
 - Tadalafil FDA approved for LUTS in men with BPH

Liu, Bonnie et al. Drug Therapy for Overactive Bladder. AUA Update Series 2021, Vol 40 page 193.

PHARMACOLOGICAL TREATMENT

- Recommend Follow up 4-6 weeks after starting medication
- If no improvement titrate medication / combo
 - Solifenacin / Trospium PLUS mirabegron
- If some improvement titrate medication
- Obtain PVR if > 1/3 total voided amount watch closely
- Cannot tolerate side effects -> 3rd line therapy

BEERS CRITERIA

- American Geriatric Society updates Beers Criteria
 - Criteria:
 - Potentially inappropriate medications in older adults
 - Potentially inappropriate medications to avoid in older adults with certain conditions
 - Medications to be used with caution in older adults
 - Medication combinations that may lead to harmful interactions
 - List of medications that should be avoided / dosed differently in those with poor renal function



OAB AND BEER

- Updated in 2019
- Anticholinergics / Anti-muscarinic agents made the LIST
- Prescribe with caution in the elderly
 - anti-muscarinic agents are contraindicated in elderly on oral potassium supplements d/t slowing gastric motility
 - Trospium is considered the safest (lowest DDI drug drug interactions)

AGS BEERS CRI		Organ System/	Recommendation, Rationale,		
FOR POTENTIALLY INAPPR		Therapeutic Category/Drug(s)	Quality of Evidence (QE) & Strength of Recommendation (SF		
MEDICATION USE IN OLD	DER ADULTS	Antispasmodics Belladorna alkaloids Clidinium-chlordiazepoxide	Avoid except in short-term palliative care to decrease oral secretions.		
FROM THE AMERICAN GERIATRIC	CS SOCIETY	Dicyclomine	Highly anticholinergic, uncertain effectiveness.		
Adults (AGS 2012 Beers Criteria), has been dev	his clinical tool, based on The AGS 2012 Updated Beers Criteria for Potentially Inoppreprinte Medication Use in Oldus (AGS 2012 Beers Criteria), has been developed to assist healthcare providers in Improving medication safety in Ider adults. Curry projects is on Inform clinical decision-making concerning the prescribing of medications for older		QE = Maderate; SR = Strong		
older adults. Our purpose is to inform clinica adults in order to improve safety and quality	al decision-making concerning the prescribing of medications for older	Antithrombotics			
addres in order to improve salely and quarty	or care.	Dipyridamole, oral short-acting* (does not	Avoid.		
that cause adverse drug events in older adult	lark Beers, MD, a geriatrician, the Beers Criteria catalogues medications is due to their pharmacologic properties and the physiologic changes of of the criteria, assembling a team of experts and funding the develop-	opply to the extended-release combination with aspirin)	May cause orthostatic hypotension; more effective alternatives available; IV form acceptable for use in cardiac stress testing, QE = Moderate; SR = Strong		
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is based on the GRADE scheme developed b	ly Guyatt et al.	12	QE = Moderate; SR = Strong		
The full document together with accompany	ing resources can be viewed online at www.americangeriatrics.org.	Anti-infective			
• • • • • • •		Nitrofurantoin	Avoid for long-term suppression; avoid in patients with		
The goal of this clinical tool is to improve car ate Medications (PIMs).	This should be viewed as a guide for identifying medications for which the risks of use in older adults outweigh		CrCl <60 mL/min. Potential for pulmonary toxicity; safer alternatives available; la efficacy in patients with CrCl <60 mL/min due to inadequate or concentration in the urine. QE = Madents; SR = Strong		
These criteria are not meant to be appl		Cordinvosculor			
	cal judgment or an individual patient's values and needs. Prescribing and	Alpha, blockers	Avoid use as an antihypertensive.		
	lividualized and involve shared decision-making. ortance of using a team approach to prescribing and the use of non-	Doxzzosin	High risk of orthostatic hypotension; not recommended as rol		
pharmacological approaches and of having	economic and organizational incentives for this type of model.	Prazosin	treatment for hypertension; alternative agents have superior ri		
			benefit profile. QE = Moderate; SR = Strong		
Implicit criteria such as the STOPPISTA a complementary manner with the 2012 A	RT criteria and Medication Appropriateness Index should be used in IGS Beers Criterio to guide clinicians in making decisions about safe	Terazosin	QE = Moderate; SR = Strong		
Implicit criteria such as the STOPPISTA	RT criteria and Medication Appropriateness Index should be used in IGS Beers Criterio to guide clinicians in making decisions about safe	Alpha agonists	QE = Moderate; SR = Strong Avoid clonidine as a first-line antihypertensive.Avoid d		
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Potentially Inappropriate Medication for Use in Older Adults (developed by the AUA Beers Criteria White Paper Workgroup based on ').

Medication	Urologic Indication			
Nitrofurantoin	Acute treatment of uncomplicated urinary tract infection without systemic symptoms in individuals living in communities with an identified high risk of quinolone-resistant organisms OR due to multiply-resistant bacteria with identified sensitivity to nitrofurantoin			
Alpha-blockers	Medical management of bothersome benign prostate enlargement symptoms while monitoring for efficacy and adverse events			
Estrogenics	 Topical (vaginal) use for symptomatic vaginal atrophy due to low estrogenic states Risk reduction for chronic recurrent urinary tract infections in postmenopausal women 			
Anti-muscarinics	 Trial of antimuscarinics is appropriate as second line therapy in patients with high bother from overactive bladder symptoms, with monitoring of benefits, risks, and adverse effects for that individual patient²⁷ Trial of antimuscarinics is appropriate for male patients with benign prostatic enlargement in whom the symptom complex includes high bother from urgency and frequency symptoms in the absence of significant urinary retention (post-void residual urine volume <200 mL) and in patients for whom first-line therapy for OAB fails²⁷ 			

AUA BEERS LIST

THIRD LINE THERAPY

- PTNS
- Botox

PTNS

- PTNS Peripheral tibial nerve stimulation
 - Less invasive
 - Acupuncture-like electrical nerve stimulation
 - Weekly for 12 weeks / 30 minutes each session
 - Needle placed medially behind the ankle with mild electrical stimulation
 - Shown to reduce OAB s/sx and improve quality of life



BOTOX

- Botulinum toxin
 - Consider if failed pharmacologic therapy
 - Botox administered under local anesthesia
 - Results are seen within 2 weeks and last for 3-12 months
 - Can cause increased risk of UTIs



FORTH LINE THERAPY

- Sacral Neuromodulation
 - Min. invasive surgical electrical stimulation
 - InterStim / Axonics
 - Patients must be able to learn to adjust the setting with a small device
 - Wire is placed into S3 foreman and connected to stimulation device
 - Two phase procedure
 - Test phase need to see > 50% improvement in S/sx
 - Second stage implantation phase



- 74 yo male with hx of BPH with LUTS (lower urinary tract symptoms)
 - PMHx: HTN BMI 32
 - Workup / GU history
 - Urodynamic study showed bladder outlet obstruction
 - PVR 35 ml
 - Prostate US 55 cc
 - I-PSS score 25/35 Q 4
 - S/p TURP 12/2020 / path benign



INTERNATIONAL PROSTATE SYMPTOM SCORE

International Prostate Symptom Score (I-PSS)

atient Name:	D	ate of birth	Date completed				
In the past month:	Not at All	Less than 1 in 5 Times	Less than Half the Time	About Half the Time	More than Half the Time	Almost Always	Your
 Incomplete Emptying How often have you had the sensation of not emptying your bladder? 	0	1	2	3	4	5	
2. Frequency How often have you had to urinate less than every two hours?	0	1	2	3	4	5	
3. Intermittency How often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
4. Urgency How often have you found it difficult to postpone urination?	0	1	2	3	4	5	
5. Weak Stream How often have you had a weak urinary stream?	0	1	2	3	4	5	
6. Straining How often have you had to strain to start urination?	0	1	2	3	4	5	
	None	1 Time	2 Times	3 Times	4 Times	5 Times	
7. Nocturia How many times did you typically get up at night to urinate?	0	1	2	3	4	5	
Total I-PSS Score							

Score: 1-7: Mild

8-19: Moderate

20-35: Severe

Quality of Life Due to Urinary Symptoms	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?	0	1	2	3	4	5	6



- Initially did very well with TURP but 6+ months later developed increasing frequency / urgency and severe urge incontinence with some lack of sensory awareness
- 3 depends a day / accidents
- Effected his quality of life
- I-PSS 15/35 (urgency / frequency / nocturia)
- Treatment options



- Behavioral Modifications / weight loss
- Started on mirabegron 25 mg x 2 months
- No significant improvement
- Discussed 3rd line therapies Botox / PTNS
- Elected to proceed with PTNS





PTNS

- Prior to starting PTNS
 - Voids 5-6x a day
 - 3-4x nocturia
 - High Urgency
 - Severe urge urinary incontinence / 3 depends daily / daily accidents
- After completing 12 weekly sessions
 - Voids 4-5x a day
 - Ix nocturia
 - I depends a day, sometimes stays dry
 - Mild urgency



The complete OAB Guideline is available at AUAnet.org/Guidelines.

This clinical framework does not require that every patient go through each line of treatment in order as there are many factors to consider when identifying the best treatment for a particular patient.

*Appropriate duration is 8 to 12 weeks for behavioral therapies and 4 to 8 weeks for pharmacologic therapies Copyright © 2019 American Urological Association Education and Research, Inc.®

CLINICAL PEARLS

- When to refer to urology?
 - No response with 1st line therapy
 - Neurological disease
 - Hematuria / pelvic mass / underlying disease that could be contributing
- OAB is a clinical diagnosis
- Treatment plans:
 - require shared decision making
 - step by step approach
 - individualized
- Screen for Dementia in OAB patients

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THE ATLANTA BRAVES' IMPROBABLE JOURNEY TO THE 2021 WORLD SERIES

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SPECIAL COMMEMORATIVE EDITION