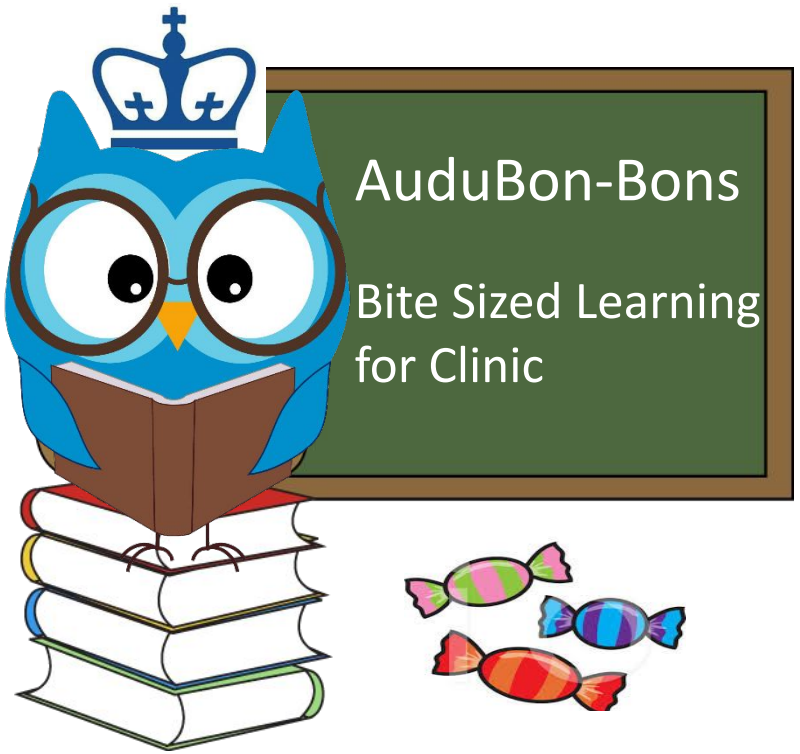
URGE URINARY INCONTINENCE- OVERACTIVE BLADDER



Week 4

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Reading Assignment:
ACOG, "Clinical Updates in Women's Health Care: Overactive Bladder": Management section
https://www.acog.org/clinical/journals-and-publications/clinical-updates/2020/01/overactive-bladder

LEARNING OBJECTIVES

- Understand the background and pathophysiology of overactive bladder
- Understand how to evaluate OAB
- Learn the tiered-management options for OAB

CASE VIGNETTE

Patient is a 39 y.o. G5 P5005 woman who presents with a 3-month history of worsening urinary symptoms.

Patient underwent a mid-urethral sling placement 3 years ago for stress urinary incontinence. Since that procedure, she denies any further episodes of stress incontinence. However, she now reports frequent nocturia and polyuria. She reports infrequent episodes of urinary incontinence when she can't make it to the bathroom in time. She denies dysuria, hematuria, or abdominal pain.

FOCUSED HISTORY

What elements of the patient's history are most pertinent?

- **POBH:** **5x FT NSVD**
- **PGYN:** Menarche @ 13 yo, regular cycles q 28 d x 4 d; denies STIs, abnormal paps, fibroids, cysts
- **PMH:** **History of stress urinary incontinence**
- **PSH:** **Midurethral sling placement**
- **FH:** Mother-HTN, DM2; father-HTN; sister-fibroids
- **SH:** No toxic habits; works in a factory; single; lives with 5 children denies IPV
- **Meds:** Multivitamin, fish oil supplement
- **All:** NKDA

PERTINENT PHYSICAL EXAM FINDINGS

What elements of the patient's physical exam are most important?

VS: P 70 BP 130/70 **Wgt:** 80 kg **Hgt:** 166cm **BMI:** 29.0 kg/m^2

- **General:** NAD, well-appearing
- **Abd:** Soft, NT/ND, no rebound/guarding, no masses
- **Gyn:** NEFG, normal urethral meatus, normal vaginal epithelium, **no mesh erosion noted or scarring**; cervix WNL and no discharge; uterus 6 week size, anteverted, nontender, no masses; no adnexal masses or tenderness
  - **Mild apical descent** to 2 centimeters above introitus with Valsalva
  - **Post-void residual 10 mL**
- **Ext:** WWP

UA: negative

BACKGROUND

- **How do you define overactive bladder (OAB)?**
  - Urinary urgency, typically accompanied by frequency and nocturia, with and without urgency urinary incontinence in the absence of urinary tract infection or other obvious pathology
  - Per, International Continence Society: A syndrome characterized by urgency incontinence, bladder instability, the unstable bladder, and frequency-urgency syndrome
- **How do you define urgency urinary incontinence?**
  - Involuntary loss of urine associated with urgency or a sudden, compelling desire to void that is difficult to deter
- **What is the prevalence of OAB?**
  - ~13% in women between 18-60 yo
    - More likely in older women but seen in a wide range of ages
  - African American women (33%) > Hispanic (29%), White (29%)
- **What are the categories of OAB?**
  - OAB-wet (with UI) and OAB-dry (without UI)

PATHOPHYSIOLOGY

- **Detrusor muscle innervated via parasympathetic (S2-S4, acetylcholinergic) and sympathetic (T11-L2, noradrenergic) nervous symptoms**
  - PSNS: stimulates muscarinic M3 receptors detrusor contraction for urination; also inhibits internal urethral sphincter then relaxes to allow urination
  - SNS: stimulates B_3- and α_1-adrenergic receptors detrusor relaxation, internal urethral sphincter muscle contraction
- **What are suggested theories for the occurrence of OAB?**
  - 1) Myogenic theory: myocyte alteration/dysfunction leads to increased excitability of detrusor exaggerated response to stimuli, involuntary contraction
  - 2) Urothelium theory: urothelium has sensory responsive capabilities, also has a secretory and inhibitory factor; unclear association but loss of urothelium seen in cases of increased detrusor activity
  - 3) Neurogenic theory: damage to suprapontine region of the brain, spinal axonal pathways associated with lower urinary tract dysfunction (MS, Parkinsons, CVA)
  - 4) Hypoestrogenism: atrophic lower urinary tract, altered bladder microbiome both contribute to bladder dysfunction

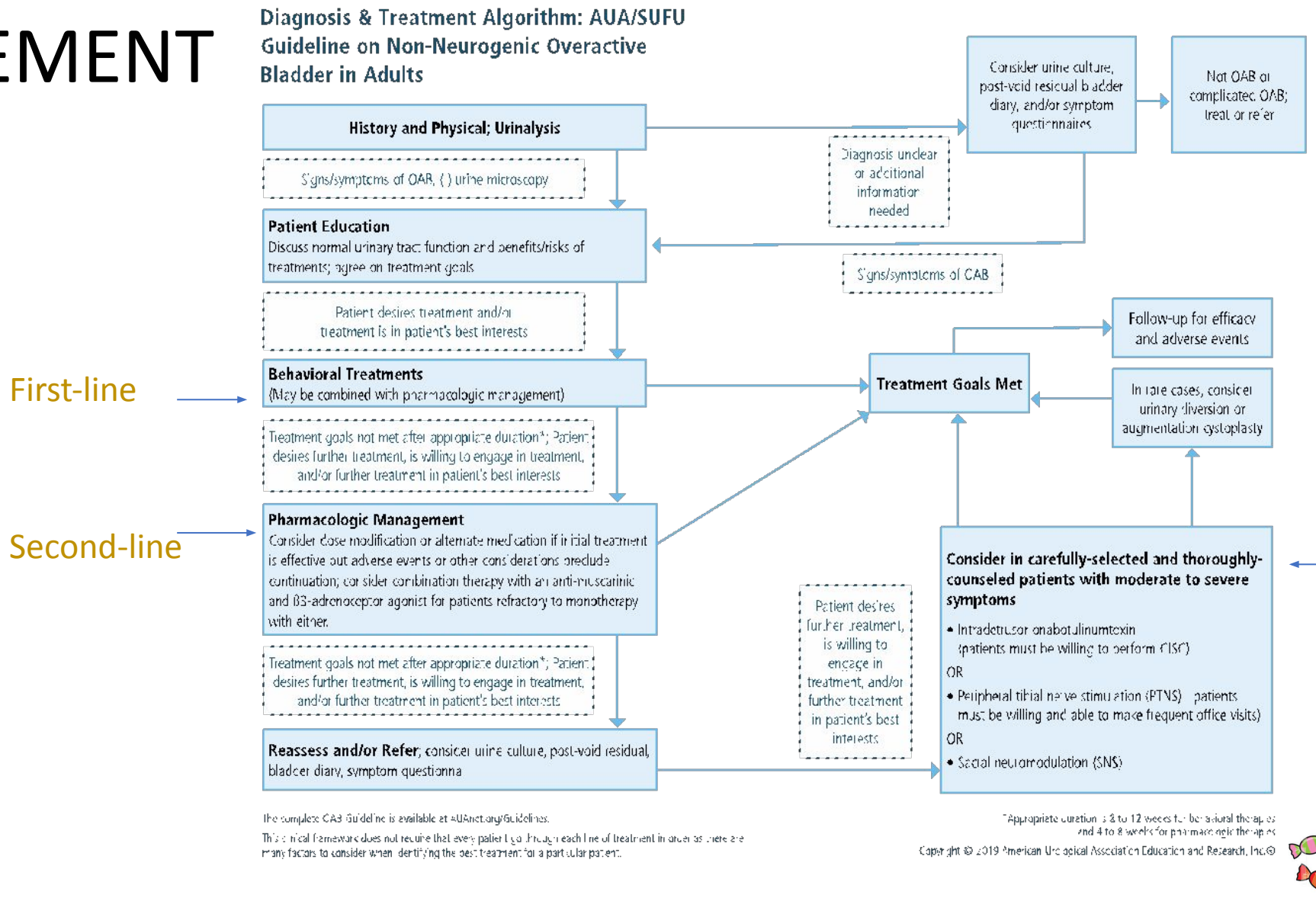
DIAGNOSIS AND EVALUATION

- OAB is primarily a clinical diagnosis
- How should you evaluate a patient for OAB?
  - Detailed history (+/- validated questionnaires on effect of symptoms on quality of life, e.g. Overactive Bladder Questionnaire, OAB-q)
  - Physical exam, including post-void residual, assessment for pelvic organ prolapse, and cough stress test
  - Urinalysis
- What are some other testing modalities that may be useful?
  - Urodynamics
  - Cystoscopy (especially in patients with prior pelvic floor surgery)

DIFFERENTIAL DIAGNOSIS

ACOG, Clinical Updates in Women's Health Care: OAB, 1/2020

MANAGEMENT


Diagnosis & Treatment Algorithm: AUA/SUFU Guideline on Non-Neurogenic Overactive Bladder in Adults
History and Physical; Urinalysis
Signs/symptoms of OAB, ( ) urine microscopy
Consider urine culture, post-void residual bladder diary, and/or symptom questionnaires
Not OAB or complicated OAB; treat or refer
Diagnosis unclear or additional information needed
Patient Education
Discuss normal urinary tract function and benefits/risks of treatments; agree on treatment goals
Signs/symptoms of OAB
Patient desires treatment and/or treatment is in patient's best interests
First-line
Behavioral Treatments
(May be combined with pharmacologic management)
Follow-up for efficacy and adverse events
Treatment Goals Met
In rare cases, consider urinary diversion or augmentation cystoplasty
Treatment goals not met after appropriate duration*; Patient desires further treatment, is willing to engage in treatment, and/or further treatment in patient's best interests
Second-line
Pharmacologic Management
Consider dose modification or alternate medication if initial treatment is effective but adverse events or other considerations preclude continuation; consider combination therapy with an anti-muscarinic and ß3-adrenoceptor agonist for patients refractory to monotherapy with either.
Consider in carefully-selected and thoroughly-counseled patients with moderate to severe symptoms
• Intradetrusor onabotulinumtoxin (patients must be willing to perform CISC)
OR
• Peripheral tibial nerve stimulation (PTNS) (patients must be willing and able to make frequent office visits)
OR
• Sacral neuromodulation (SNS)
Third-line
Treatment goals not met after appropriate duration*; Patient desires further treatment, is willing to engage in treatment, and/or further treatment in patient's best interests
Patient desires further treatment, is willing to engage in treatment, and/or further treatment in patient's best interests
Reassess and/or Refer; consider urine culture, post-void residual, bladder diary, symptom questionna
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
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1. Behavioral Modification
   - Reduce caffeine intake
   - Reduce excess fluid consumption
   - Weight loss
   - Bladder diary for 1-5 days
   - Timed voiding
   - Bladder training (daily regimen x 4-6 weeks)
   - Pelvic floor muscle therapy, urge suppression techniques, and biofeedback

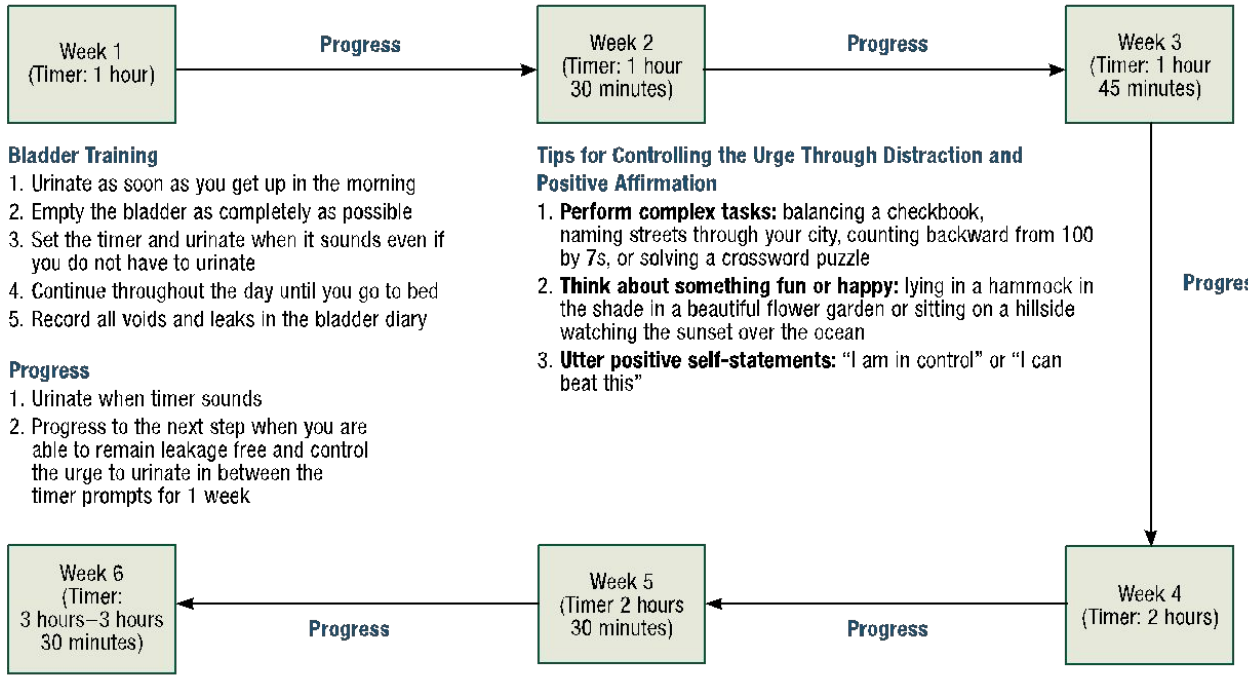

Figure 3. Bladder training regimen.

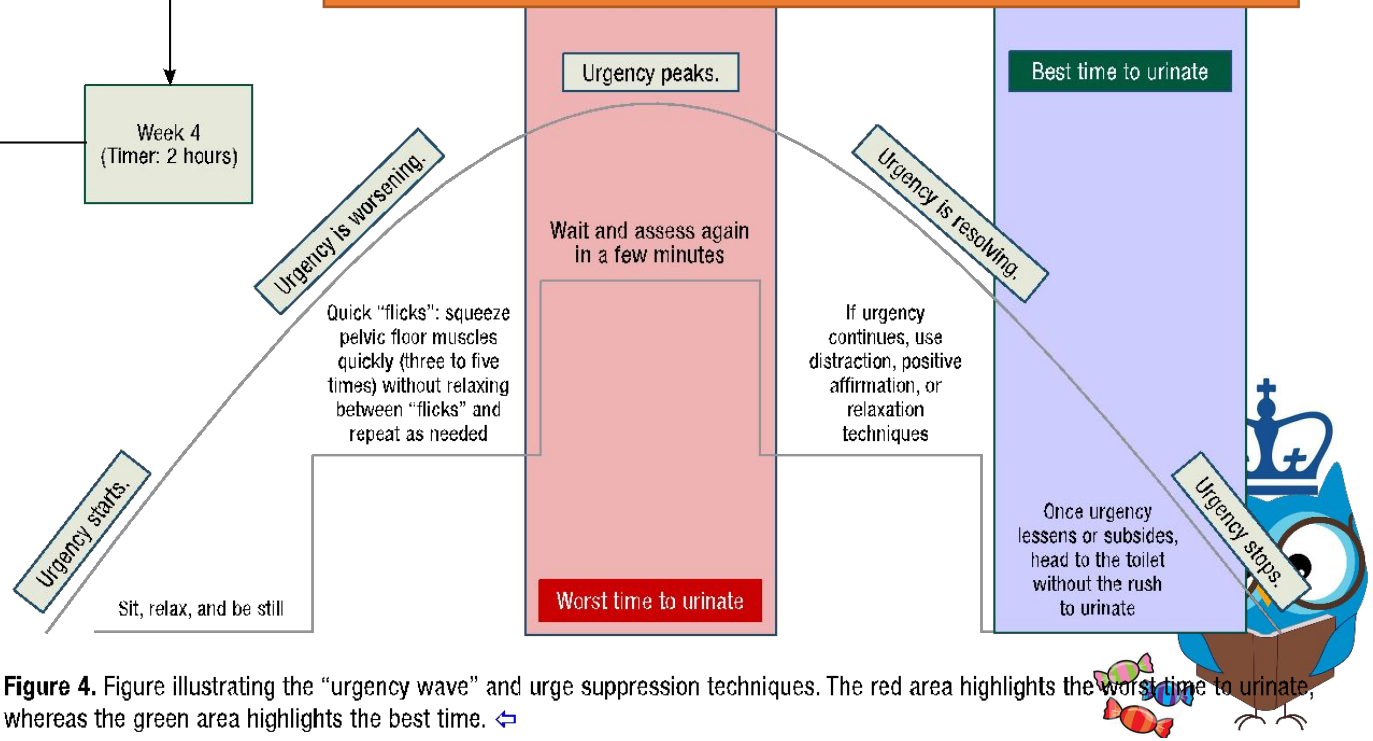

Figure 4. Figure illustrating the "urgency wave" and urge suppression techniques. The red area highlights the worst time to urinate, whereas the green area highlights the best time.

ACOG, Clinical Updates in Women's Health Care: OAB, 1/2020

MEDICATION MANAGEMENT

Antimuscarinics (oxybutynin, tolterodine, solifenacin, trospium)

- Nonselective
- Side effects: dry mouth (29.6%) and pruritus (15.4%) most common; others include erythema, GERD, blurry vision, urinary retention, cognitive adverse effects, constipation
  - Manage side effects preemptively
- DO NOT use: angle-closure glaucoma, at risk of cognitive impairment (e.g. elderly population), medicine interactions (tricyclic antidepressants, first-generation antihistamines, antipsychotics)

B3-adrenergic receptor agonists (mirabegron)

- Generally well-tolerated, more favorable side-effect profile (vs. antimusc.), more favorable for elderly population
- Side effect: hypertension
- Disadvantage: no generic of Mirabegron available yet

Desmopressin

- For nocturnal polyuria
- Oral and intranasal formulations available
- Side effect: hyponatremia (generally mild, but needs regular monitoring)

Vaginal estrogen

- Systemic estrogen is not proven to improve OAB symptoms
- Local/vaginal estrogen has shown to have some benefit to reduce OAB symptoms
- Can treat vaginal atrophy simultaneously

THIRD-LINE TREATMENTS

OnabotulinumtoxinA

- Inhibits vesicle-mediated neurotransmission (inhibits acetylcholine release) detrusor relaxation; lasts 6-12 months
- Incontinence episode reduction similar to medication regimen, but complete resolution better (27% vs 13%)
- Side effect: 1) urinary retention, 2) UTIs

Sacral neuromodulation

- Two-step process
- Stimulates S3 sacral nerves
- Similar reduction of UUI episodes compared to onabotoxA

Percutaneous tibial nerve stimulation

- S2-S4 nerve stimulation in medial malleolus
- Weekly treatments x 12 weeks, the monthly maintenance
- Better long-term results compared to medication alone (select population)

SOCIAL DETERMINANTS OF HEALTH

- **Nonneurogenic OAB in women is associated with a significant economic cost in the United States**
  - More than $7 billion annually (4x the cost of OAB in men)
  - Younger patients have increased diagnostic costs; older patients (>65 y.o.) have increased costs for home and routine care
    - All patients bear pharmacologic costs ($1.2 billion)
- **OAB significantly impacts a woman's quality of life**
  - Sexual dysfunction (shame, decreased arousal and desire)
  - Physical limitations (fear of UI episodes affecting choice of work, ability to feel comfortable in social situations away from home)

Overactive bladder has a significant impact on the psychological, social, and economic health of women and affects a wide age-range: Always screen your patients for symptoms!

EPIC .PHRASE

.BBonOAB

Description: Overactive bladder counseling

We reviewed the patient's diagnosis of overactive bladder. In our discussion, we went over, in detail, her symptoms consistent with the diagnosis, possible etiologies for her symptoms, and prognosis. We reviewed management options, with first-line options being behavioral modification and pelvic floor exercises. Second-line options include antimuscarinic or adrenergic agonist medications. Third-line options for refractory cases include intravesical botox injections, sacral nerve modulation, or posterior tibial nerve stimulation.

The patient's questions were answered. She was instructed on maintaining a bladder diary for 2 days. She was also educated on ***weight loss, pelvic floor exercises, avoidance of foods that stimulate the bladder, reduced fluid intake, and timed voids. She will return in 2-3 months for a follow-up of her symptoms. ***She was referred to urogynecology for further evaluation and management.

CODING AND BILLING

- **ICD-10**
  - **N32.81**: Overactive bladder
  - **N39.41:** Urge urinary incontinence

EVIDENCE

- Al Hussein al Awamlh B et al (2020). Overactive blader [monograph]. *Clinical Updates in Women's Health Care* (Vol XIX, No. 1), 1-41. https://www.acog.org/clinical/journals-and-publications/clinical-updates/2020/01/overactive-bladder

- Urinary incontinence in women. Practice Bulletin No. 155. American College of Obstetricians and Gynecologists. Obstet Gynecol 2015; 126:e66 – 81.

- DeCesare J. Overactive bladder. Famuyide A ed. Pearls of Exxcellence. https://www.exxcellence.org/list-of-pearls/overactive-bladder Accessed Sept 2020.