بنام خدا

Overactive Bladder

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Definition

Urinary incontinence:

Involuntary loss of urine

Main Types of Incontinence

- **Stress incontinence:** Loss of urine with exertion or sneezing or coughing.
- **Urgency incontinence:** Leakage accompanied by or immediately preceded by urinary urgency.
- **Mixed incontinence:** Loss of urine associated with urgency and also with exertion, effort, sneezing, or coughing.
- **Overflow incontinence:** Leakage of urine associated with urinary retention.
- **Continuous incontinence:** Is the complaint of a continuous leakage.

Lower Urinary Symptoms

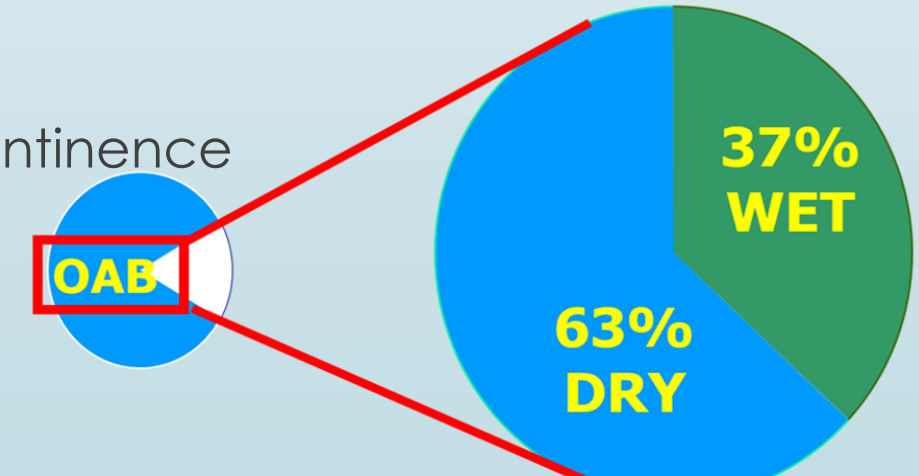
	storage	voiding	Post micturition
Dysfunction	Overactiviy Decreased compliance Hypersensitivity Underactivity Stress urinary incontinence Combination fistula	Underactivity outlet obstruction Functional disorders Combination	Post- void dribble incomplete emptying
symptoms	Urgency Frequency Nocturia incontinence	Hesitancy Intermittency Slow stream Splitting or spraying Terminal dribble	Post- void dribble Feeling of incomplete emptying

Terminology

- **OVERACTIVE BLADDER** (ABRAMS ET AL. 2002)

The International Continence Society **(ICS)** defined overactive bladder (OAB) syndrome as ***"urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence (UUI), in the absence of urinary tract infection (UTI) or other obvious pathology"***

- **OAB**
  - **Wet**: urgency ,frequency with incontinence
  - **Dry**: urgency ,frequency without incontinence



Terminology…

- **URGENCY** (HAYLEN ET AL. 2010)

Sudden, compelling desire to void which is difficult to defer

- **Frequency**

voids Too often by day

- **Nocturia**

Wake up for voiding

- **Urgency incontinence**

Urgency Incontinence

Standardized Terminology and Definitions to Describe Lower Urinary Tract Dysfunction Related to Overactive Bladder

TERMINOLOGY	DEFINITION	REFERENCE
Overactive bladder syndrome	Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection (UTI) or other obvious pathology	Haylen et al., 2010
Increased daytime urinary frequency	Complaint by the patient who considers that he/she voids too often by day[a] (seven voids upper limit of normal[b])	Abrams et al., 2002; Haylen et al., 2010
Nocturia	Complaint of interruption of sleep one or more times because of the need to micturate. Each void is preceded and followed by sleep.	Haylen et al., 2010
Urgency	Complaint of a sudden, compelling desire to void that is difficult to defer	Haylen et al., 2010
Urgency (urinary) incontinence	Complaint of involuntary loss of urine associated with urgency	Haylen et al., 2010

[a]Abrams et al., 2002.

Terminology

- The syndrome of OAB is based on **symptoms**; in contrast, detrusor overactivity (DO) is a **urodynamic observation,** characterized by involuntary detrusor contractions during the filling phase, which may be spontaneous or provoked.

- **Mixed urinary incontinence (MUI)** is the ***"complaint of involuntary loss of urine associated with urgency and also with effort or physical exertion or on sneezing or coughing"*** (Haylen et al., 2010).

Overactive Bladder vs. Bladder Pain Syndrome

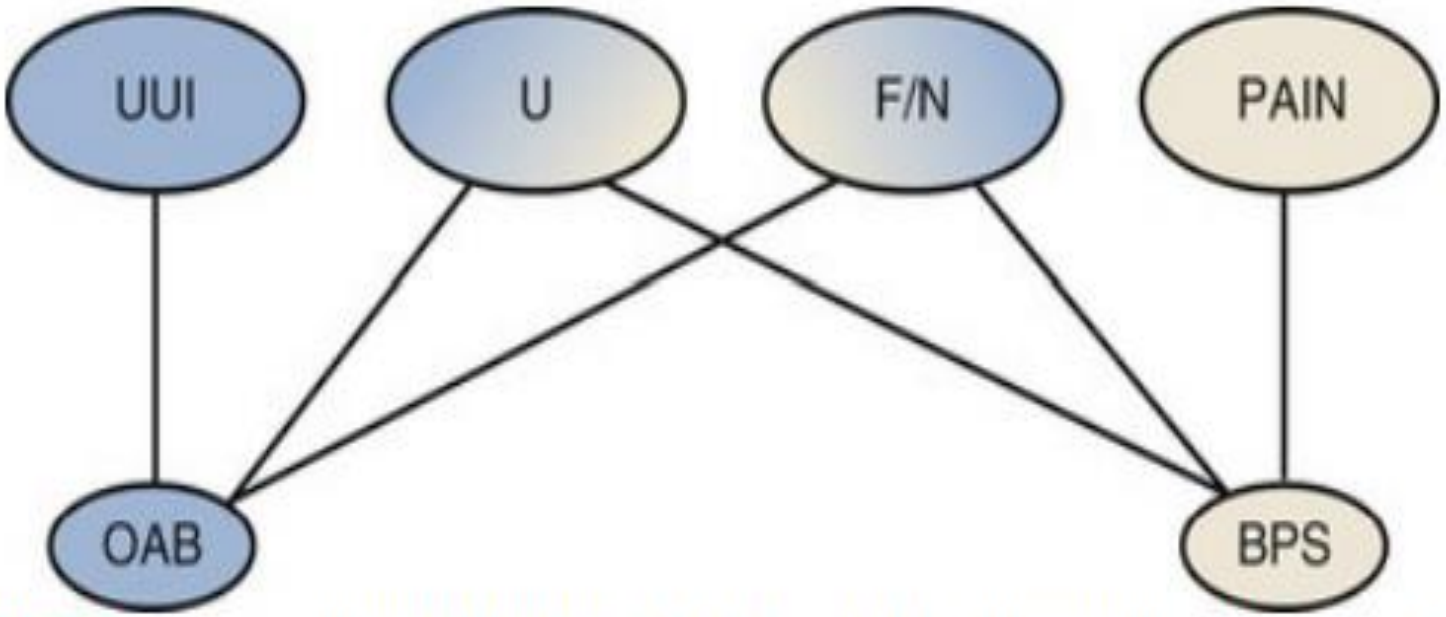
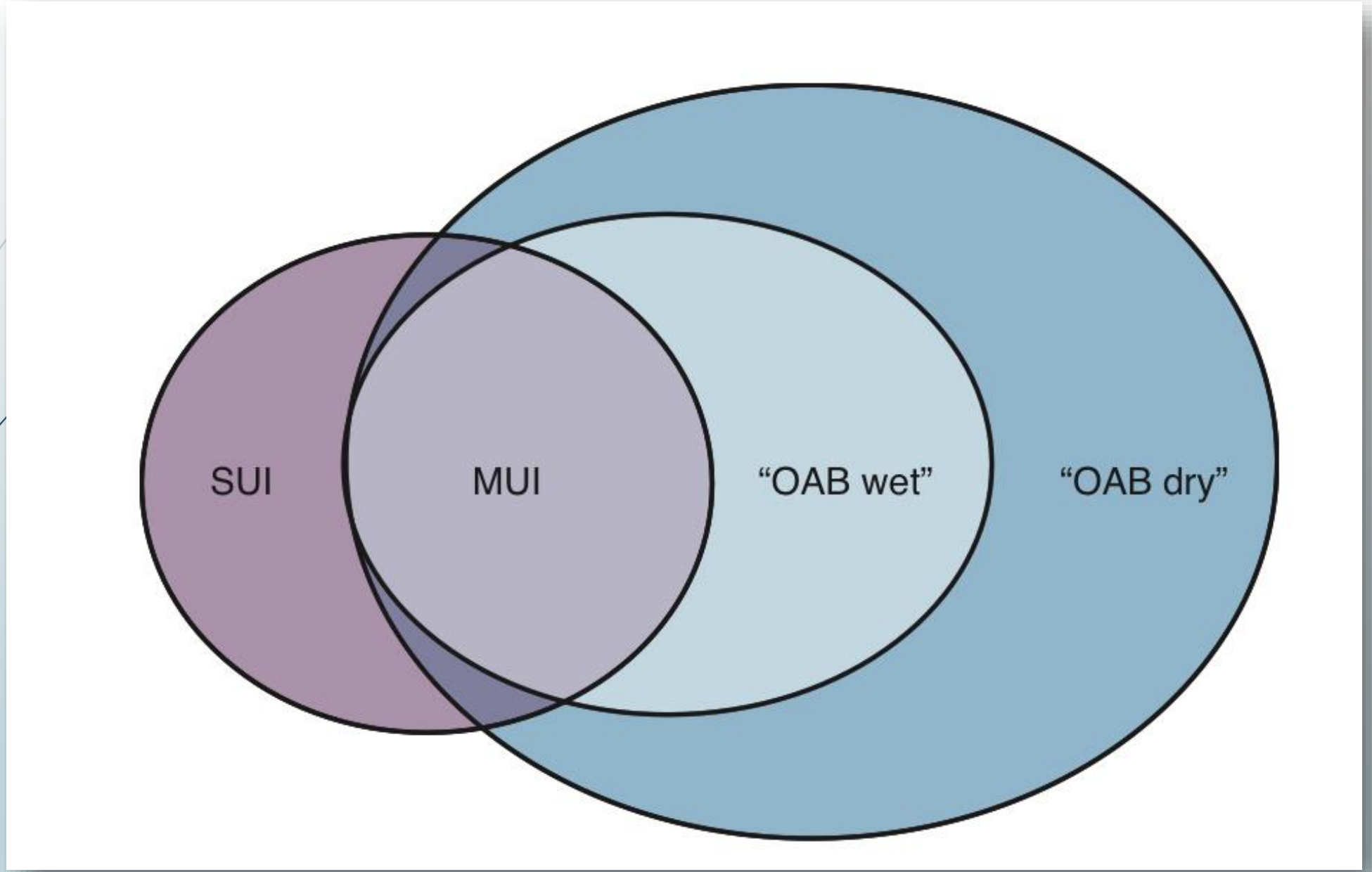


FIG. 117.2 Overactive bladder (OAB) and bladder pain syndrome (BPS) give rise to urgency (U), frequency (F), and nocturia (N); pain, but not urgency urinary incontinence (UUI), is seen in BPS.


SUI
MUI
“OAB wet”
“OAB dry”

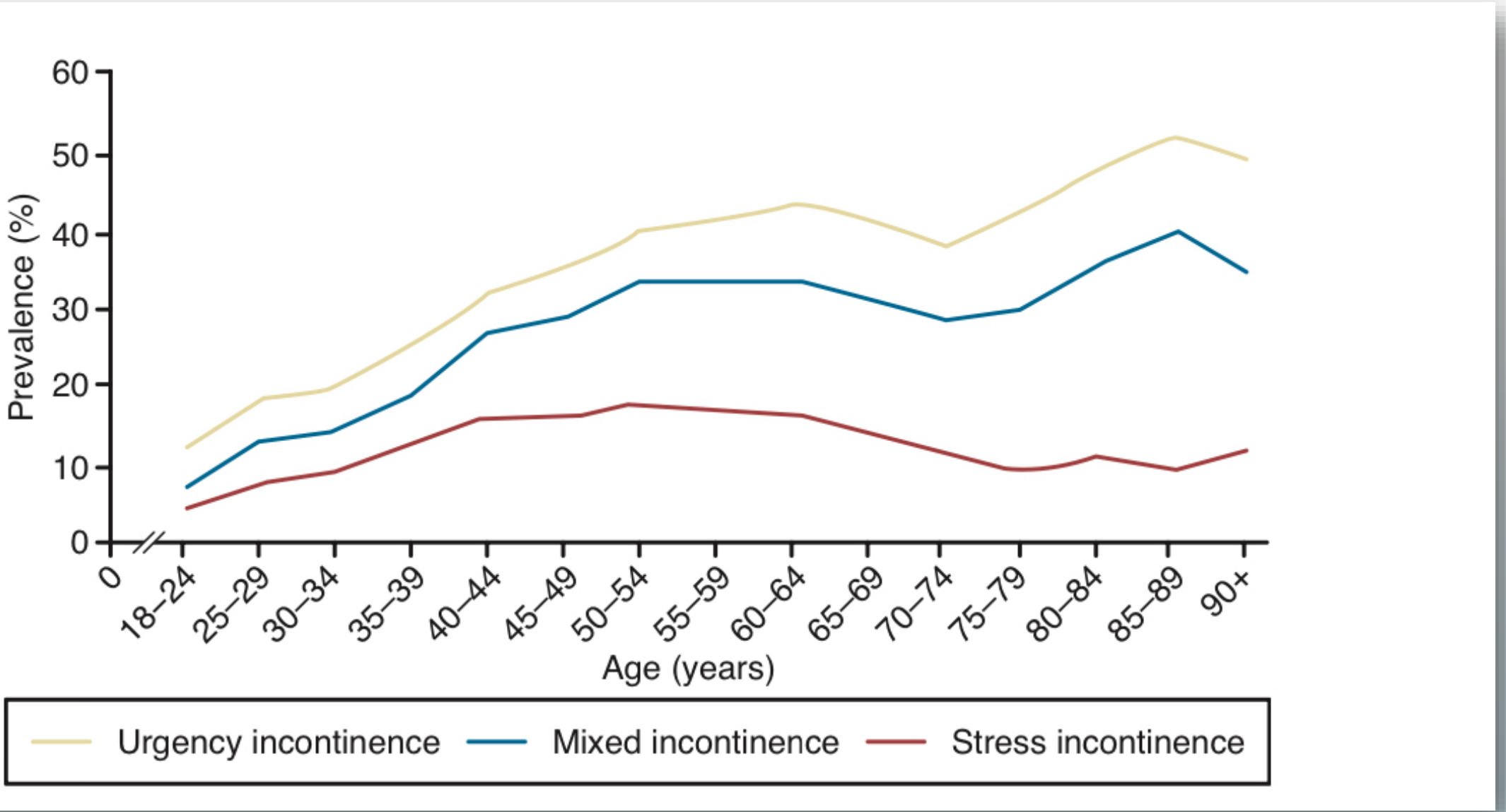
Epidemiology

- ***OAB*** *is common in men and women but tends to disparately affect women.*

- *Most epidemiologic studies report a prevalence of OAB in women of approximately* ***1.5 to 2 times*** *that of men and rates of UUI of 2 to 3 times those in men.*

- Although in the National Overactive Bladder Evaluation Study (NOBLE), the incidence of OAB was similar at **16.9% in women** and **16.0% in men**

- The prevalence of symptoms of OAB **increases with aging** , appearing to increase in women in their 40s and men in their 50s and 60s.


Prevalence (%)
60
50
40
30
20
10
0
0
18–24
25–29
30–34
35–39
40–44
45–49
50–54
55–59
60–64
65–69
70–74
75–79
80–84
85–89
90+
Age (years)
Urgency incontinence
Mixed incontinence
Stress incontinence

Economics

- in the United States, including direct costs (i.e., medical and nonmedical) and indirect costs (i.e., lost productivity), approached **$65.9 billion in 2007**, with projected increases to **$76.2 billion** and **$82.6 billion in 2015 and 2020**.

REVIEW ARTICLE

Prevalence of female urinary incontinence in the developing world: A systematic review and meta-analysis—A Report from the Developing World Committee of the International Continence Society and Iranian Research Center for Evidence Based Medicine

Hadi Mostafaei, Homayoun Sadeghi-Bazargani, Sakineh Hajebrahimi, Hanieh Salehi-Pourmehr, Morteza Ghojazadeh, Rahmi Onur, Riyad T. Al Mousa, Matthias Oelke

First published: 03 April 2020 | https://doi.org/10.1002/nau.24342 | Citations: 1

Results

In total, 54 studies with 138,722 women aged 10 to 90 years were included in this meta-analysis. Prevalence of UI ranged from 2.8% in Nigeria to 57.7% in Iran. The total prevalence of UI was 25.7% (95% CI: 22.3-29.5) and the prevalence rates for stress, urgency, and mixed UI were 12.6% (95% CI: 10.3-15.4), 5.3% (95% CI: 3.4-8.3), and 9.1% (95% CI: 7.0-11.8), respectively. When we excluded the elderly population, UI prevalence only slightly changed (26.2%; 95% CI: 22.6-30.2). Prevalence rates varied considerably during different recall periods, **ranging from 15.6% for UI during the last 12 months to 41.2% for UI during the last 3 months.** However, the study quality and use of validated vs nonvalidated questionnaires only had a minor impact on the prevalence rates.

Negative Impacts of OAB

- Social isolation
- Depression
- Embarrassment or shame of UI
- Discontinue activities(physical, social, sexual…)
- Skin irritation
- disturbed sleep
- decreased self-esteem
- missed workdays
- Falls and fractures
- Reduce happiness
- Negative effects on health-related quality of life (HRQoL)

Clinical Evaluation

- Detailed History(A)
- Focused physical examination(A)
- Urine analysis(A)
- Post void residual volume (A)
- Questionnaire(opt B)
- Voiding diary(A)
- Urodynamic(opt)
- cystoscopy(opt)
- imaging of the urinary tract(opt)

Initial assessment	
• History	Strong
• Physical examination	Strong
• Questionnaire#	Strong
• Voiding diary#	Strong
• Urinalysis	Strong
• Post void residual if voiding difficulty	Strong
• Pad test	Weak

(#When standardised assessment is required)

2020 EAU Guide line

- *Urodynamics, cystoscopy, and diagnostic renal and bladder ultrasound should not be used in the initial workup of the uncomplicated patient*

History

- bother from each of the storage LUTS
- voiding phase symptoms
- Post-micturition LUTS, dysuria , hematuria
- Presence of neurologic disease
- History of pelvic surgery or radiotherapy
- Obstetrical history
- Bowel and sexual function(constipation, diarrhea, fecal incontinence)
- Medication history
- **Impact on quality of life**

Physical examination

- Focused physical examination
- Abdomen Examination of bladder (e.g., fullness, masses, tenderness)
- Pelvis
- Extremities (e.g., edema, tremor)
- A basic neurologic examination
- General assessment of cognition and frailty
- DRE in men
- cough test(sitting , standing) -+ Q-tip test
- Vaginal , Uterus ,Cervix , parametria (prolapse, lesions, discharge)
- Anus(tone) and perineum

Bristol Urological Institute

روز نگار مثانه

نام و نام خانوادگی:.....

- لطفا این روز نگار مثانه 3 روزه را تکمیل نمایید. هر کدام از موارد زیر را در ستون مربوطه، روبروی زمانها یادداشت کنید. در صورت نیاز می‌توانید زمانهای مشخص شده را تغییر دهید. در ستون مربوط به ساعتها، در هنگام خوابیدن کلمه **"خواب"** و هنگام بیدار شدن کلمه **"بیدار"** را بنویسید.

نوشیدنی‌ها: در قسمت مربوط به نوشیدنی ها مقدار و نوع نوشیدنی-های مصرفی خود را یادداشت کنید .

میزان ادرار دفعی: در ستون مربوط به میزان ادرار دفعی، حجم ادرار دفع شده در شب و روز را برحسب میلی‌لیتر یادداشت نمایید. برای اندازه‌گیری حجم می‌توانید از هر ظرفی استفاده کنید. در صورتی که نتوانستید میزان ادرار دفعی را اندازه‌گیری نمایید، در این ستون فقط تیک بزنید. زمانهایی را که دچار نشت ادراری می‌شوید با قید کلمه **نشت ادرار** در این ستون مشخص کنید.

حس مثانه: جهت توصیف حس مثانه در زمان مراجعه به دستشویی برای تخلیه ادرار، از کدهای زیر استفاده نمایید

0- در صورتیکه هیچ احساس نیازی به ادرار کردن نداشتید و فقط بخاطر مسائل اجتماعی مثلا هنگام بیرون رفتن از خانه یا اینکه نمی‌دانید دستشویی بعدی کجا خواهد بود به توالت رفتید.

1- اگر حس نیاز به ادرار کردن طبیعی بود و احساس **"اضطرار در دفع"** (عجله) نداشتید.

اضطرار ادراری حسی متفاوت از حالت طبیعی است و به احساس نیاز شدید برای دفع ادرار گفته می‌شود که به تاخیر انداختن آن ممکن است مشکل‌ساز شود.

2- اگر شما اضطرار در دفع ادرار دارید ولی قبل از رسیدن به دستشویی رفع می‌شود.

3- اگر شما اضطرار در دفع ادرار دارید و به هر نحو ممکن خود را به دستشویی می‌رسانید و ادرار نشت نمی‌کند.

4- اگر شما اضطرار در دفع ادرار دارید و نمی‌توانید خود را به دستشویی برسانید و ادرار نشت میکند.

پد *(پوشک)*: اگر از پد استفاده می‌کنید یا آن را عوض می‌کنید در ستون مربوطه علامت بزنید.

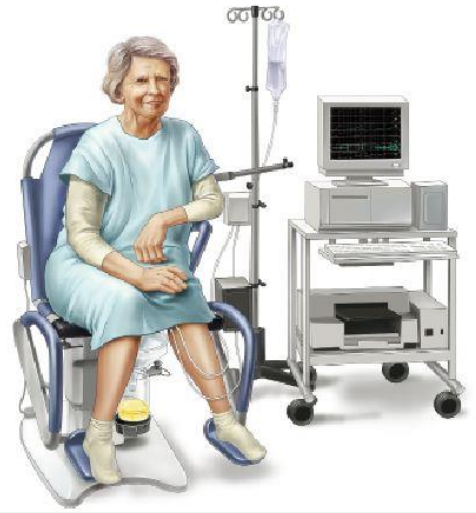
روز اول..... تاریخ.....

زمان	نوشیدنی		برون ده ادراری (میلی لیتر)	حس مثانه	پد
	میزان	نوع			
6 صبح					
7 صبح					
8 صبح					
9 صبح					
10 صبح					
11 صبح					
12 ظهر					
1 بعد از ظهر					
2 بعد از ظهر					
3 بعد از ظهر					
4 بعد از ظهر					
5 عصر					
6 عصر					
7 عصر					
8 شب					
9 شب					
10شب					
11شب					
12 نیمه شب					
1 صبح					
2 صبح					
3 صبح					
4 صبح					
5 صبح					

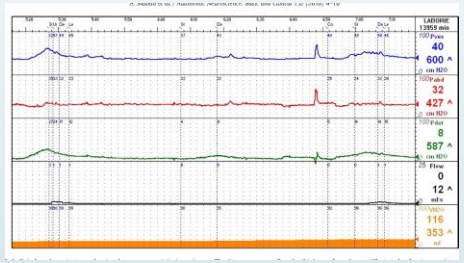
در اینجا نمونه‌ای از نحوه تکمیل این فرم اورده شده است.

زمان	نوشیدنی		برون ده ادراری (میلی لیتر)	حس مثانه	پد
	میزان	نوع			
6 صبح بیدار			350	2	
7 صبح	300 میلی	چای			
8 صبح			✓	2	
9 صبح					
10 صبح	فنجان	آب	نشت ادرار	3	✓

Urodynamic Study



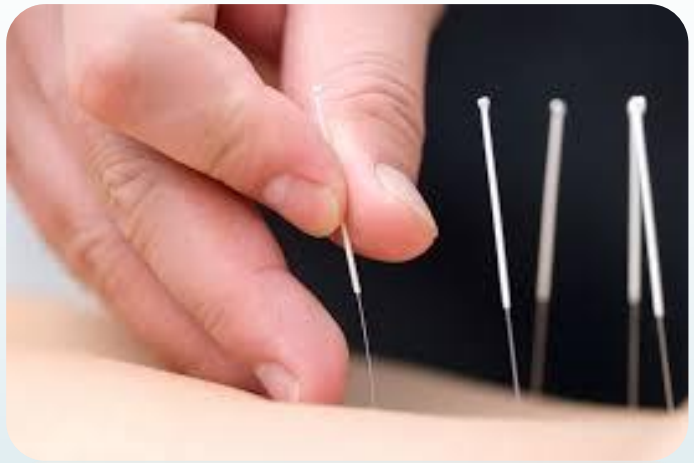
- Urodynamic testing is widely used as an adjunct to clinical diagnosis, in the belief that it may help to provide or confirm diagnosis, predict treatment outcome, or facilitate discussion during counselling.
- **For all these reasons, urodynamics is often performed prior to invasive treatment for UI.**
- *The two main urodynamic diagnoses associated with OAB are **DO** and early and/or exaggerated **filling sensation.***



2020 EAU Guide line

Recommendations *(NB: Concerning only neurologically intact adults with UI)*	**Strength rating**
When performing urodynamics in patients with UI adhere to 'Good Urodynamic Practice' standards as described by the International Continence Society [73]: • attempt to replicate the patient's symptoms; • check recordings for quality control; • interpret results in the context of the clinical problem; • remember there may be physiological variability within the same individual.	Strong
Do not routinely carry out urodynamics when offering treatment for uncomplicated SUI.	Strong

Treatment of OAB

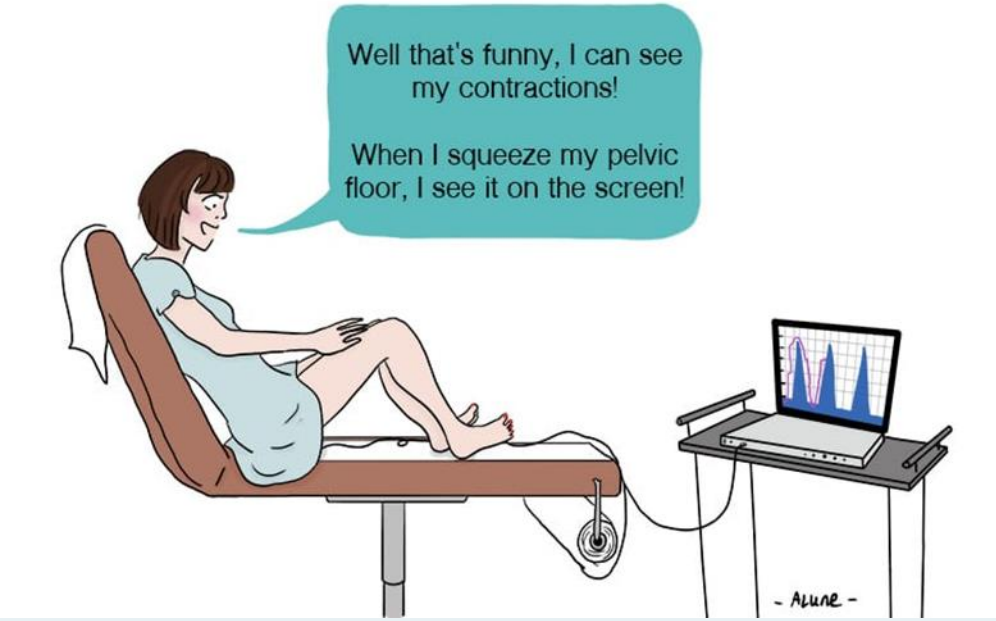


First Line

Life style modification

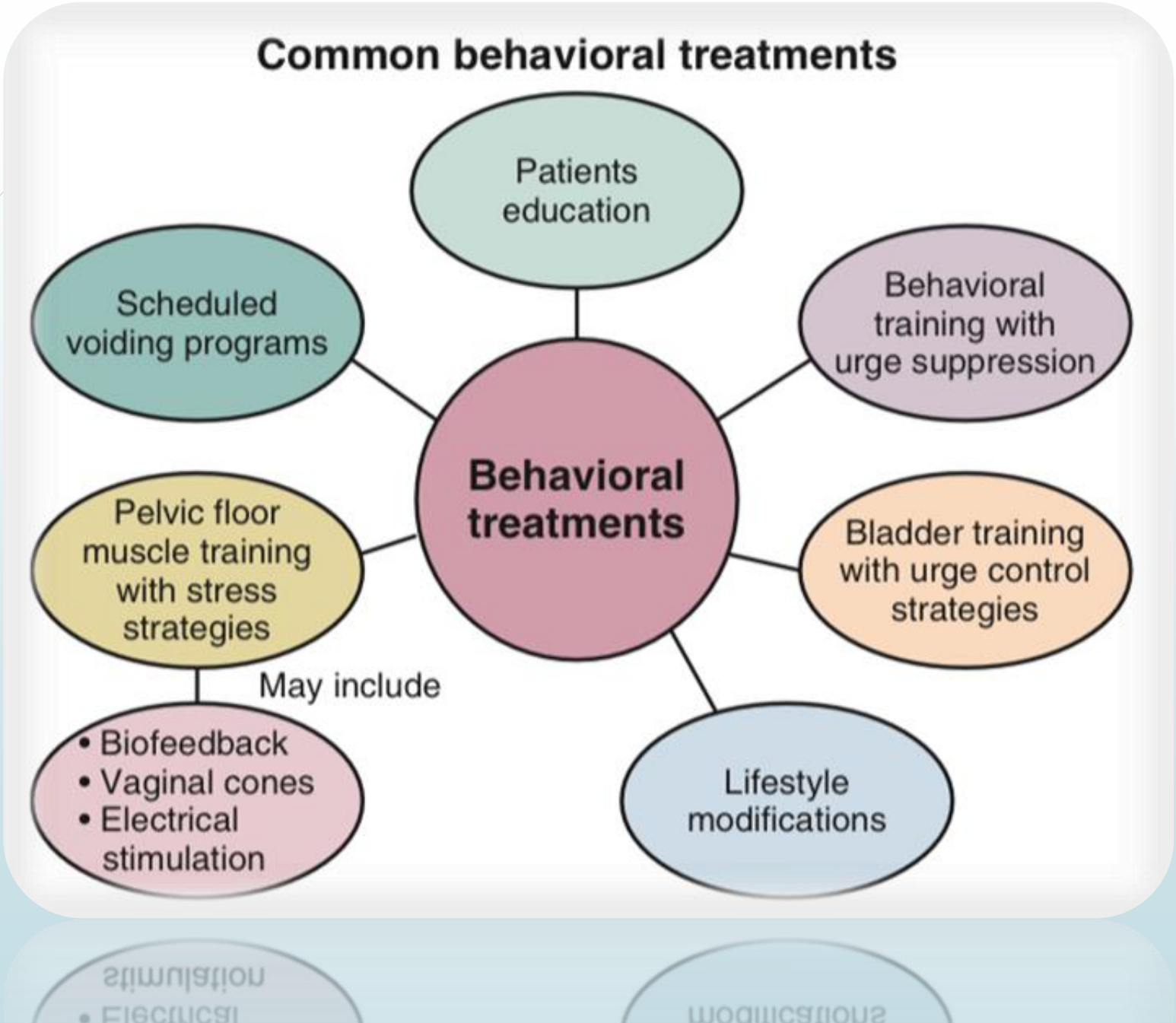
- Stop_smoking(C)
- Weight loss (women: A, men: B)
- Reduce fluid intake(not in all patient)
- Reduce caffeine (Tea, Coffee and Cola) (C)
- Diet (reduce alcohol, bear, spicy & sour food, sugar, …)
- Moderate exercise is associated with lower rates of UI in middle-aged or older women.

First Line…



Behavioral therapy:

- Patient education
- Self monitoring(bladder diary)
- Pelvic floor muscles training (PFMT)
- Pelvic floor muscles exercise (PFME)
- Active use of pelvic muscles
- Urge prevention and suppression techniques (urge strategies)
- Bladder training (BT)
- Biofeedback (BF)
- Electrical stimulation (E-stim)
- Delayed voiding


Common behavioral treatments
Patients education
Scheduled voiding programs
Behavioral training with urge suppression
Behavioral treatments
Pelvic floor muscle training with stress strategies
Bladder training with urge control strategies
May include
• Biofeedback
• Vaginal cones
• Electrical stimulation
Lifestyle modifications

Behavioral Training with Urge Suppression

- Anal sphincter contraction
- Use knock technique
- Stay away bathroom for avoid triggo urgency
- Sit down, relax the body ,contract PFMs

Estrogen

- Vaginal oestrogen therapy improves UI for post-menopausal women in the short term. (1a)
- Systemic hormone replacement therapy using conjugate equine oestrogens in previously continent women increases the risk of developing UI and worsens pre-existing UI. **(1a)**

Pharmacotherapy in OAB & UUI

1-antimuscarinics

2-beta -3 agonists

3- ca antagonists

4-potassium channel openers

5-alfa adrenergic antagonists

6-phosphodiesterase inhibitors

7-antidepressants

8-cyclooxygenase inhibitors

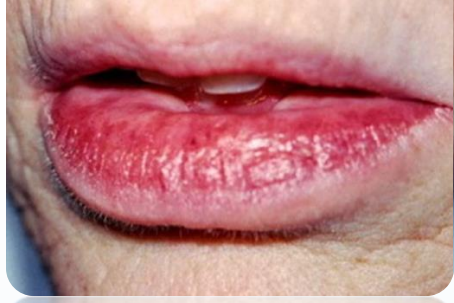
9-other drugs

Second line

Condition		Drug	GR
Stress Urinary Incontinence	Antidepressant	Duloxetine	C
		Imipramine	C
	Hormone	Estrogen top	C
OAB Urgency Urinary Incontinence	Antimuscarinic	Oxybutynin	A
		Fesoterodine	A
		Imidafenacin	A
		Solifenacin	A
		Trospium	A
		Tolterodine	A
		Propiverine	A
		Darifenacin	A
	Beta3-Agonist	Mirabegron (β3)	B

Side effects

- Dry mouth (most common)
- constipation
- blurred vision
- fatigue
- cognitive dysfunction
- QT prolangation



Carbamazepine
Cimetidine
Claritromycin
Erythromycin
Hydroxychloroquine
Ondansetron
Rifampin
Ketokonazole

2020 EAU Guide line

Recommendations	Strength rating
Offer antimuscarinic drugs for adults with UUI who failed conservative treatment.	Strong
Consider extended release formulations of antimuscarinics drugs, whenever possible.	Strong
If an antimuscarinic treatment proves ineffective, consider dose escalation or offering an alternative antimuscarinic formulation, or mirabegron, or a combination.	Strong
Encourage early review (of efficacy and side effects) of patients on antimuscarinic medication for UUI.	Strong

PFMT = pelvic floor muscle training; UUI = urgency urinary incontinence.

Solifenasin succinate

- Modest selective M2&M3 antagonist
- Metabolized in liver via P450
- Mean half life:45-68 h
- It is safe and tolerable in elderly and children and MS patients and SCI
- Dosage: 5-10 mg /QD

Tolterodine tartrate

- Non selective antimuscarinic
- Liver metabolization via P450
- Half life:2-3 h in plasma but longer in bladder
- Low CNS penetrations , low cognitive disorders but can disturb sleep
- There is IR & ER tolterodine: IR=1& 2mg , ER = 2& 4 mg
- Dosage: IR 1-2 mg/BID
- ER 2-4 mg/QD

Oxybutynin

Antimuscarinic with mixed action: antimuscarinic (M1,M2,M3) , direct muscle relaxant, local anesthetic effects

Metabolized in liver via P450

Half life :2 hours with wide interindividual

IR – oxybutynin :

Dosage :5 mg/TDS-QID , high incidence of side effects (dry mouth , constipation , drowsiness ,blurred vision) , no change in ECG in elderly , negative cognitive effects especially in elderly and also children

Low dose starting decrease side effects

ER- oxybutynin :

Decrease side effects especially dry mouth

Dosage :10 mg

Mirabegron

- ***MIRABEGRONE*** *(Betanis ,Mirbeting ,Betmiga)* is the first clinically available beta3 agonist, available from 2013.
- *SOLABEGRON*
- *RITOBEGRON*

- **Mirabegone:**
- 55% excreted in urine ,34% feces
- Metabolized in liver
- Half life :23 h
- Dosage :25 – 100 mg/QD
- **Side effects** :GI (most common) including constipation, dry mouth(3 times less than tolterodine) , dyspepsia, nausea and increase heart rate
- No retention, No ECG effects ,
- Increase BP with higher doses

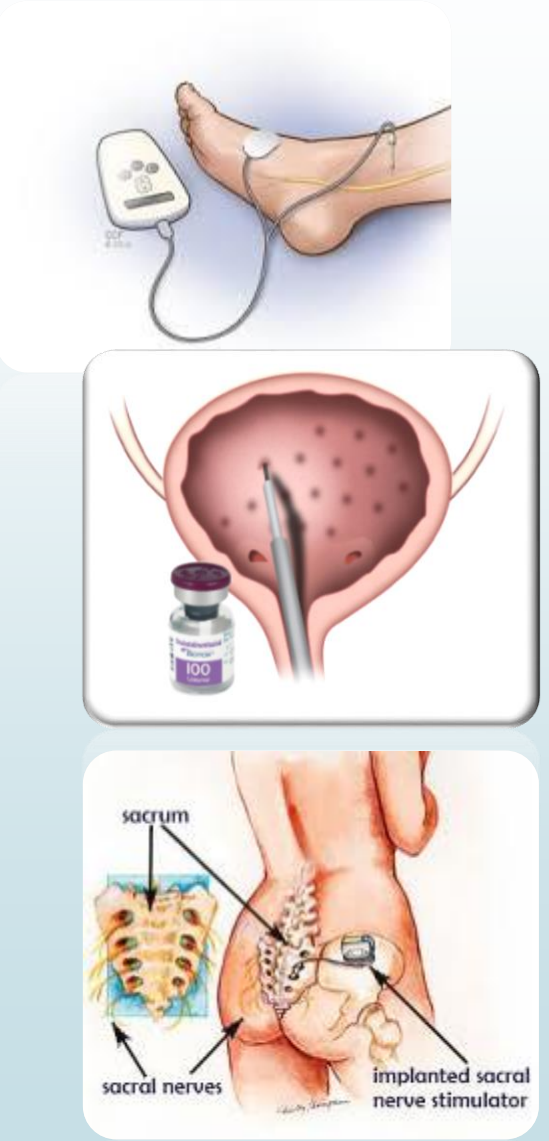
Other drugs

- Darifenasin , trospium, fesoterodine, imidafenasin
- Ca channel blockers
- Anti depressant : imipramine

…

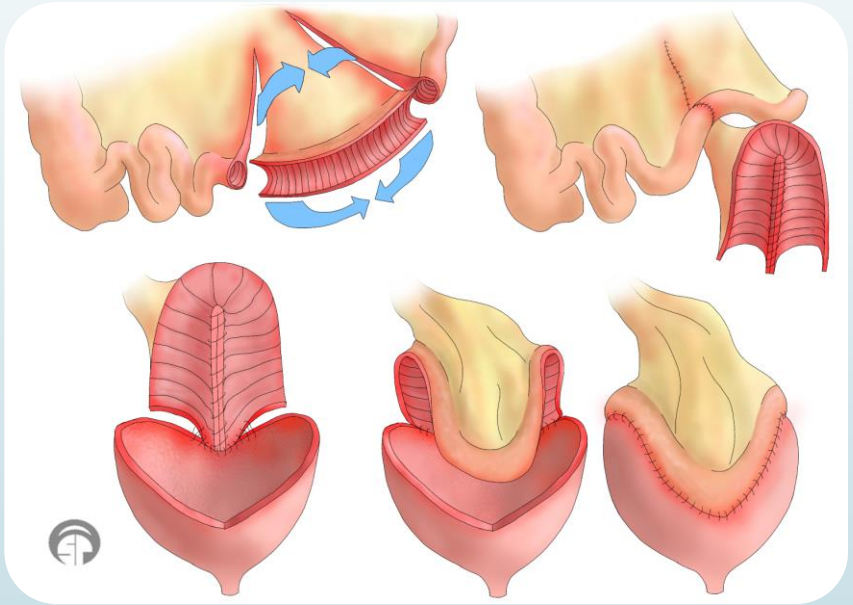
Third Line

- Tibial nerve stimulation(OAB , UA & pain)
- Injection of botulinum toxin(OAB)
- Sacral neuromodulation (OAB &UA)



Fourth-Line

Augmentation cystoplasty or urinary diversion… ??



Take-Home Massage

- OAB is common condition in both men and women
- Urgency urinary incontinence is the most common type of incontinence
- History, Ph/E, urine analysis , PVR , bladder diary should be performed for all patient with OAB syndrome and incontinent .
-
- Treatment should begin with conservative treatment (behavioral therapy , physiotherapy , pharmacotherapy)
- Antimuscarins are used for overactive bladder
- Surgical management should be used when other treatment will not bring positive results

Thank you