



# URINARY INCONTINENCE

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## What is Urinary Incontinence (UI)?

- Nearly 13 million Americans affected.
- Females > Males
- International Continence Society (ICS) definition: condition where involuntary loss of urine is a social or hygienic problem and is objectively demonstrable

## What are the risk factors for UI?

- Impaired mobility
- Impaired cognitive function
- Neurologic disorders
- Increasing age
- Female gender
- Drugs: alpha blockers/agonists, ACEIS, anti-cholinergic agents/properties(anti depressants, anti-psychotics, anti-histamines), diuretics, beta agonists, sedatives

## What is the cause of UI?

- **Gentourinary factors:** impairment of anatomy which leads to decreased function
- **Nongentourinary factors** (medical conditions): infection, diabetes, fecal impaction, atrophic vaginitis

## What are the types of UI?

- **Urge:** characterized by a sudden urge with inability to reach the toilet in time
- **Stress:** characterized by involuntary loss of urine during activity
- **Overflow:** characterized by constant involuntary dribbling with hesitancy & feeling of incomplete emptying upon voiding
- **Functional:** characterized by continent individuals that are unable to reach the toilet in time due to external factors, i.e. environment or limited mobility.
- **Mixed:** characterized by symptoms of two or more of the above types

## **How is a patient diagnosed with UI?**

- Physical Exam
- Urinalysis
- PVR (Post void residual) volume
- MESA Urinary Incontinence Questionnaire
- Identify causes of new onset UI:
  - Delirium
  - Infection
  - Atrophic urethritis
  - Pharmaceuticals
  - Psychological
  - Excessive urine output
  - Restricted mobility
  - Stool impaction

## **What are the treatment options for a patient diagnosed with UI?**

- Non-pharmacological treatment
  - Maintain proper fluid intake (Patients should drink 8oz of fluid/day)
  - Pelvic muscle exercises (Kegel)
  - Eliminate/decrease caffeine intake
  - Bladder training techniques (scheduled urination)
  - Improved toilet access (environmental and social alterations)
  - More invasive surgical methods

Pharmacological Agent	Dose	Side Effects	Comments
<b>Bladder Relaxants-1<sup>st</sup> line for Urge</b>		Boldface= >10%	
Oxybutynin (Ditropan XL) (Oxytrol) Direct antispasmodic for smooth muscle	<b>Regular release:</b> 5mg BID to TID, max 5mg QID <b>Extended release:</b> 5-10mgQD, max 30mg QD <b>Patch:</b> 3.9mg/day, apply 2 QW	<b>Dizziness, somnolence, dry mouth, constipation, urination impaired, HA</b>	Minor substrate only of 3A4
Tolterodine (Detrol LA) Competitive muscarinic antagonist	<b>Immediate release:</b> 2mg BID, may be lowered to 1mg BID if needed <b>Extended release:</b> 4mg QD, can be lowered to 2mg QD	<b>Dry mouth (slightly less with extended), chest pain, HA</b>	Major substrate CYP2D6 & 3A4
Hyoscyamine (Levbid, Levsin) Blocks ACH at smooth muscle sites	<b>Oral or SL:</b> 0.125-0.25mg Q4H (before meals), max 1.5mg/24hrs <b>Timed release:</b> 0.375-0.75mg Q12, max 1.5mg/24hrs	CV (palpitations, tachycardia), dizziness, HA, dry mouth, blurred vision Freq. of SE not characterized	.
Tropium (Sanctura) Muscarinic antagonist, reduces bladder smooth muscle tone	<b>Oral:</b> 20mg BID	<b>Dry mouth, tachycardia, HA, Constipation</b>	Metabolized esterase hydrolysis Renally cleared. Give on empty stomach (or 1 hr prior to meals)
Darifenacin (Enabalex) Selective M3 antagonist	<b>Oral:</b> 7.5mg QD, can increase to 15mg QD after 2 wks	<b>Dry mouth, constipation, HA, dizziness, dyspepsia, abdominal pain</b>	Do not increase dose to 15mg if moderate hepatic impairment or potent 3A4 inhibitors. Metabolized through 3A4 (major) and 2D6 (minor) Avoid drug in major hepatic impairment. Take without regard to meals.
Solifenacin (Vesicare) Inhibits muscarinic receptors	<b>Oral:</b> 5mg/day, may increase to 10mg/day if tolerated	<b>Dry mouth, constipation, edema, HTN, dizziness, fatigue, blurred vision</b>	Metabolized through CYP3A4. Use lower dose in moderate hepatic impairment. Take without regard to food.
<b>Tricyclic antidepressants 2<sup>nd</sup> line for Urge &amp; Stress</b>			
Imipramine (Tofranil)	2.5mg TID to QID, increase gradually, max 300mg/day	Orthostatic hypotension, dizziness, drowsiness, HA, nausea, dry mouth, constipation, blurred vision	Metabolized to desipramine, substrate of 2C19
Doxepin (Sinequan)	25-150mg/day QHS or in 2-3 divided doses, max daily 300mg, max single dose 150mg	Orthostatic hypotension, dizziness, drowsiness, HA, nausea, dry mouth, constipation, blurred vision	Major 1A2, 2D6, 3A4 substrate

Desipramine (Norpramin) (Pertofrane)	75mg/day in divided doses, increase to 150-200mg/day. Max 300mg/day, lower for elderly	Orthostatic hypotension, dizziness, drowsiness, HA, nausea, dry mouth, constipation, blurred vision	Substrate of 2D6
<b>Alpha Agonists 1<sup>st</sup> line for Stress</b>			
Pseudoephedrine (Sudafed)	<b>Immediate release:</b> 30-60mg Q4-6H <b>Extended release:</b> 120mg Q12H, max 240mg/24hrs	Increased BP, Tachycardia, excitability, dizziness, nausea, tremor, diaphoresis	Caution in uncontrolled HTN
<b>Estrogens 3<sup>rd</sup> line for Urge &amp; Stress</b>			
Estradiol cream 0.01% (Estrace)	2-4g/day gel: 1.25mg/day	Erythema, rash pruritis	Metabolized via 3A4, but minimal systemic absorption
<b>SNRI- OFF-LABEL for Stress</b>			
Duloxetine (Cymbalta)	40mg BID	<b>Insomnia, somnolence, dizziness, HA, Nausea, dry mouth, constipation, appetite suppression, anxiety, sexual dysfunction, muscle cramps</b>	Metabolized via 1A2 and 2D6

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Name:

### UI Review Questions

1. Stress UI is not one of the four types of urinary incontinence. T or F
2. Males are at greater risk of developing UI than females. T or F
3. Which bladder relaxant does NOT go through the CYP450 enzymes and is renally cleared? \_\_\_\_\_
4. Bladder relaxants are first line treatment for STRESS incontinence T or F
5. Which one of the following is NOT a side effect commonly associated with bladder relaxants (anticholinergics):
  - A. Dry mouth
  - B. Diarrhea
  - C. Headaches (HA)

