Urinary Issues in The Elderly

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Lower Urinary Tract Conditions in Elderly Patients

- BENIGN PROSTATIC HYPERPLASIA AND LUTS
- PROSTATE CANCER
- POLYPHARMACY
- NOCTURIA
- INCONTINENCE AND LUTS
- LOWER URINARY TRACT INFECTION
- HEMATURIA
- URINARY RETENTION AND CATHETERS

BPH and LUTS

- Not all cases of BPH need treatment
- LUTS are assessed with both subjective and objective studies
  - IPSS Questionnaire
  - US of urinary tract with measurement of post-void residue

IPSS questionnaire

Over the past month, how often have you…	Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	YOUR SCORE
1. …had a sensation of not emptying your bladder completely after you finish urinating?	0	1	2	3	4	5	
2. …had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5	
3. …stopped and started again several times when you urinated?	0	1	2	3	4	5	
4. …found it difficult to postpone urination?	0	1	2	3	4	5	
5. …had a weak urinary stream?	0	1	2	3	4	5	
6. …had to push or strain to begin urination?	0	1	2	3	4	5	
7. Over the past month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	None	Once	Twice	3 times	4 times	5 times or more	
						TOTAL	

8. QUALITY OF LIFE DUE TO URINARY SYMPTOMS
If you were to spend the rest of your life with your urinary condition the way it is now, how would you feel about that?

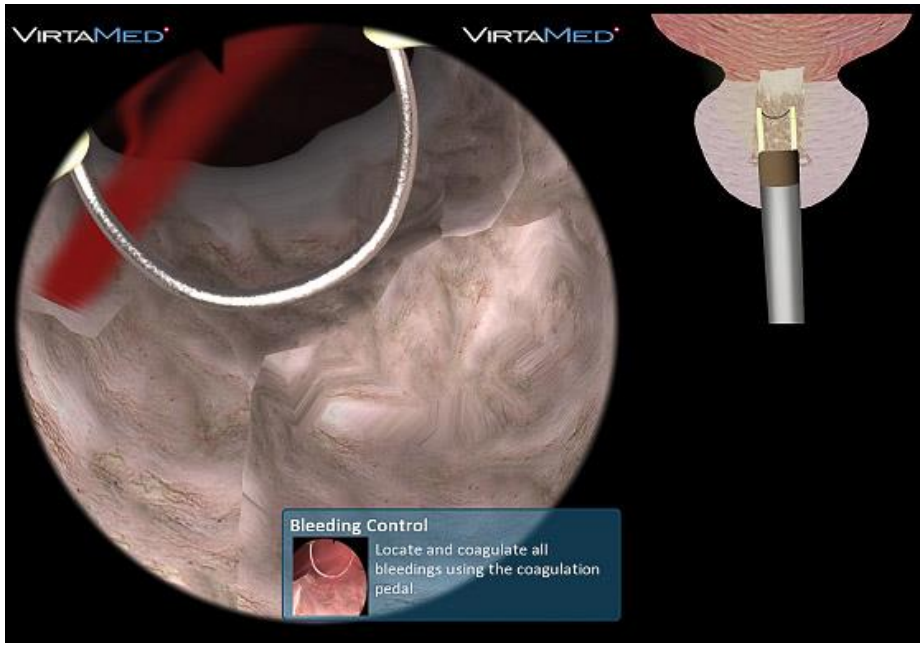
Delighted	Pleased	Mostly satisfied	Mixed – about equally satisfied & dissatisfied	Mostly dissatisfied	Unhappy	Terrible
0	1	2	3	4	5	6

BPH

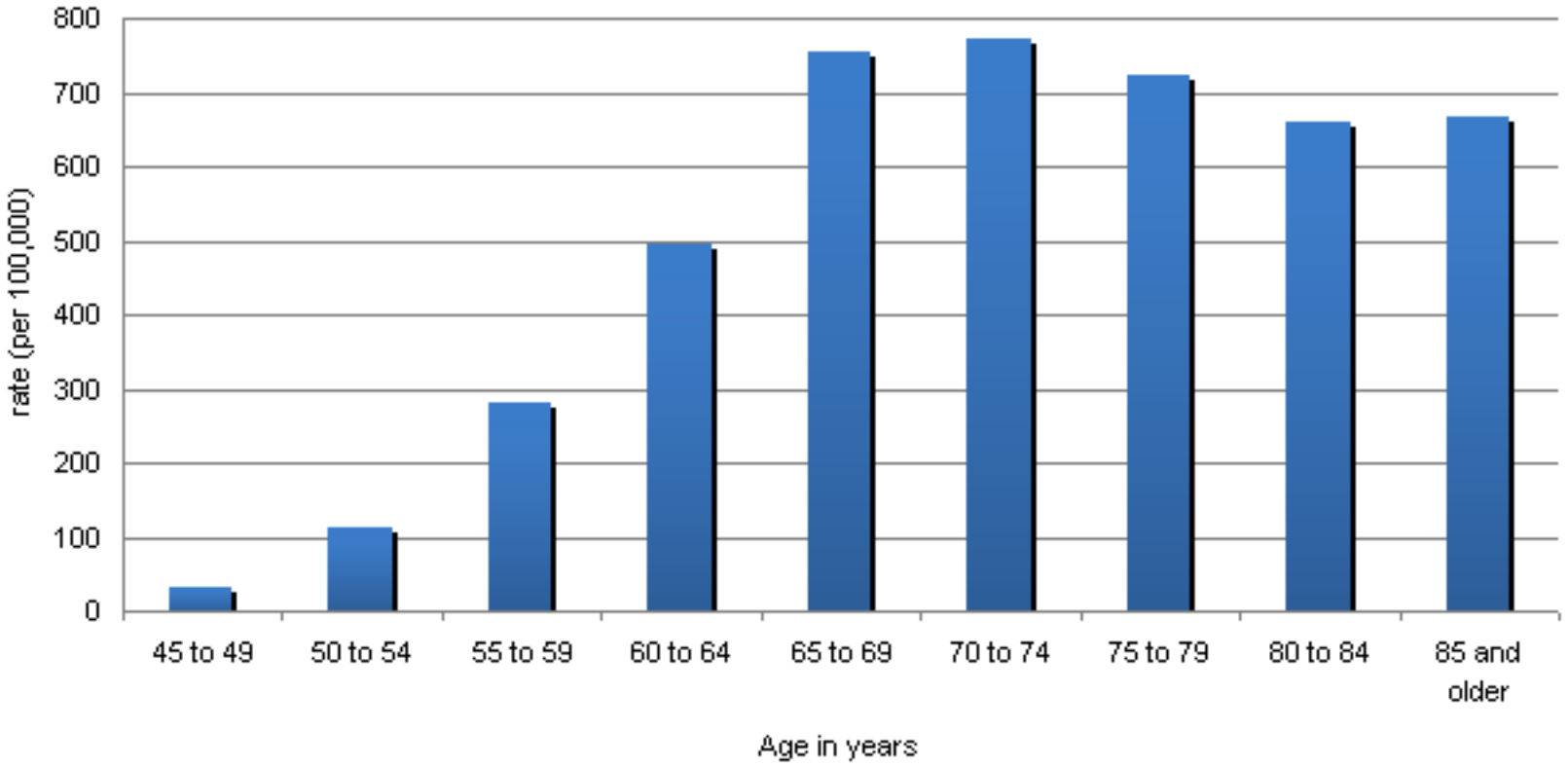
- Two major approaches of medical therapy for prostatic outflow obstruction:
  1. Relaxing the prostate smooth muscle tissue
  2. Decreasing glandular volume

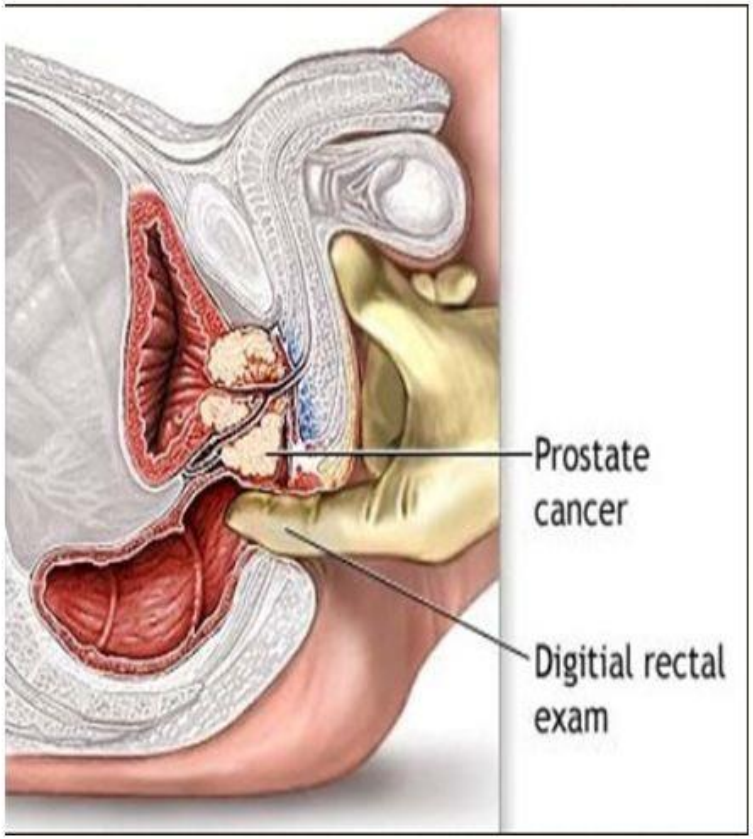
Indications for Surgery

- Recurrent/persistent infection
- Hematuria
- Bladder stones
- Hydronephrosis
- Progressive renal failure
- Acute urinary retention



Prostate Cancer- Incidence





- **Prostate Cancer Detection with DRE & PSA**
- **Method of Detection Percentage of Cancer Detected**
- **DRE Alone 18%**
- **PSA Alone 45%**
- **Both DRE and PSA Over 80%**
- **A high PSA does not automatically mean prostate cancer**

PSA Test

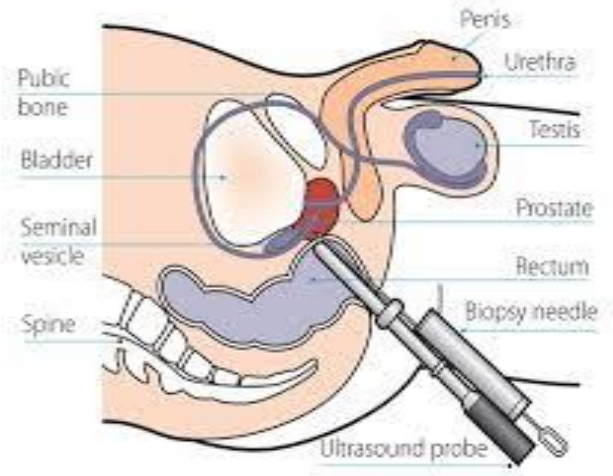
- Measures the level in blood
- Reported as nanograms of PSA per milliliter (ng/mL)
- If abnormally high, test should be repeated
  - In PSA 4-10 :

  25% of pts with PSA have normal PSA on repeat testing
- PSA testing can provide a diagnostic lead time of 5-10 years

	American Cancer Society®	American Urological Association	European Association of Urology	U.S. Preventive Services TASK FORCE
Age to Start	Age 50 for average risk 45 for high risk 40 for higher risk	Age 55- 69 Higher risk men <55	Age >50 Age >45 for high risk men	Age > 55
Testing Frequency	Every 2 years if PSA <2.5 Yearly if PSA > 2.5	Every 2 years or more	Every 2 years if PSA >1 at age 40 PSA >2 at age 60 Every 8 years if not at risk	individualized
Age to Stop	life expectancy <10 years	>70 years old OR life expectancy <10-15 years	Life expectancy <15yrs	Age >70

positive FH or African American race is considered high risk

Prostate Cancer: Diagnosis



Prostate Biopsy

- Cornerstone in diagnosis of CaP
- Approaches
  - TRUS-guided biopsy
  - Transurethral
  - Transperineal

TREATING PROSTATE CANCER

Prostate cancer treatments differ primarily in technical nature and potential side effects.

Treatment options can depend on the following:

- The stage of the cancer
- The patient's age and health
- The patient's Gleason Score — This determines how likely it is that a tumor will spread
- Whether the cancer is recently diagnosed or recurring
- The patient's prostate-specific antigen (PSA) levels — PSA is a substance made by the prostate that may be found in an increased amount in the blood of men who have prostate cancer

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Polypharmacy

- Average elderly on
  - 2-6 prescribed medications
  - 1-3 over-the-counter medications

  The medication list of all elderly patients must be reviewed

Polypharmacy

Narcotics and sleep aids → constipation and restricted mobility

Caffeine and alcohol → urinary urgency and leakage

Cold and flu therapies → anti-cholinergic properties

Nocturia

- Awaking at night to urinate
- Voiding <2 times a night likely normal for most elderly
- one of the most bothersome lower urinary tract symptoms and most common causes of disturbed sleep in the elderly

The Burden of Nocturia Is Broad and Substantial

ASSOCIATIONS

Reduced quality of life[1,2]

Poorer overall and mental health[1]

Reduced work productivity[1]

Increased falls and fractures[3-6]

Increased mortality[5]

Short-Term Consequences[8]

- Increased daytime sleepiness
- Reduced daytime energy
- Longer reaction time
- Reduced psychomotor performance
- Decreased concentration/ memory/cognitive function
- Poor mood

Long-Term Consequences[8]

- Depression
- Susceptibility to somatic disease
- Risk of cardiovascular disease
- Risk of car accidents

1. Kobelt G, et al. *BJU Int*. 2003;91(3):190-195. 2. van Dijk MM, et al. *BJU Int*. 2010;105(8):1141-1146. 3. Asplund R. *Arch Gerontol Geriatr*. 2006;43(3):319-326. 4. Stewart RB, et al. *J Am Geriatr Soc*. 1992;40(12):1217-1220. 5. Nakagawa H, et al. *J Urol*. 2010;184(4):1413-1418. 6. Temml C, et al. *Neurourol Urodyn*. 2009;28(8):949-952. 7. Kupelian et al. *Am Urol Assoc Edu Res*. 2011;185:571-577. 8. Abrams P. *Eur Urol Suppl*. 2005;3(6):1-7.

Nocturia

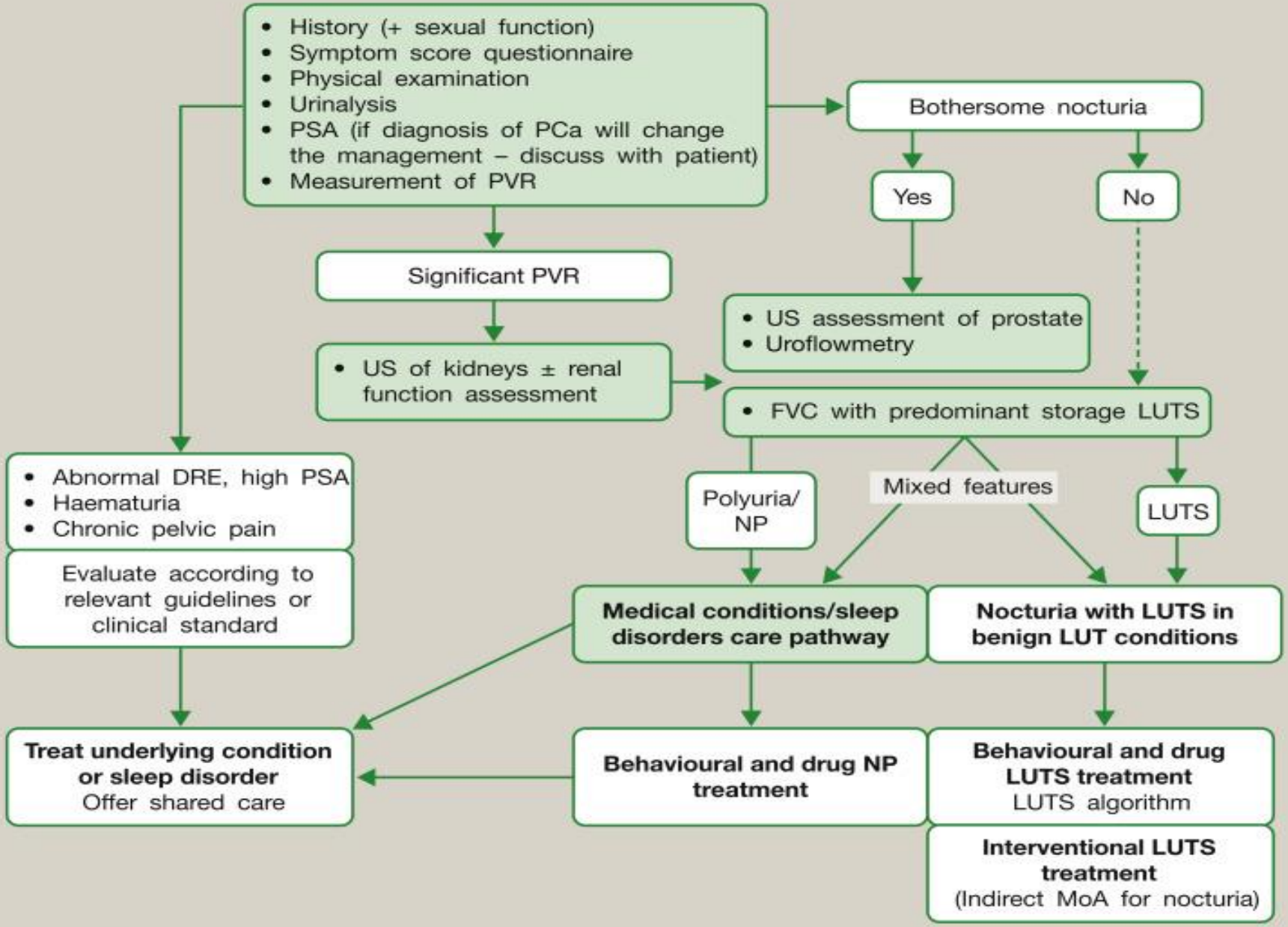
- *voiding diary* often helpful
- Avoided mostly with simple lifestyle adjustments
  - limiting fluids and supine positioning a few hours before bedtime
- At times, caused by poor bladder emptying
  - Post-void residual should be considered

Voiding diary

BLADDER AND BOWEL RECORD DATE: Thurs Jan 12

@TIME	DRINKS	+ TOILET	ACCIDENTS		BOWELS
	Amount & type	✓ or amount	✓ Small/ medium/ large	Reason for leakage	** Bowel movement
0:					
7 am	juice 1 cup	230ml	med	strong urge when I woke up	
	coffee 1 cup				
8:45 am	coffee 1 cup				
9:10 am		120ml	large	strong -urge	4 ✓
9:15 am	coffee 1 cup	150ml	large	strong urge	
10:30 am		125ml	large	strong urge	
11:55 am		180ml			
12:30 pm		75 ml	large	strong urge	
3:25 pm		120ml			
5:10 pm	tea 1 cup				

Management of nocturia



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Physiologic Requirements for Continence

Motivation to be continent

Adequate mobility and dexterity

Normal lower urinary tract function

Adequate cognitive function

Physiologic Requirements for Continence

Storage:

No involuntary bladder contractions

Appropriate bladder sensation

Closed bladder outlet

Low pressure accommodation of urine

Physiologic Requirements for Continence

Emptying:

Normal bladder contraction

Lack of anatomic obstruction

Coordinated sphincter relaxation & bladder contraction

Absence of environmental/iatrogenic barriers

Table 19-10 Neural Control of Micturition

Muscle (Type)	Parasympathetic Nerves (Cholinergic)	Sympathetic Nerves (Adrenergic)	Somatic Nerves
Detrusor (smooth muscle)	Contraction +++	Relaxation +	No effect
Internal sphincter (smooth muscle)	No effect	Contraction ++	No effect
External sphincter (striated muscle)	No effect	No effect	Relaxation ++

Urinary Incontinence

- *Temporary*
  - urinary tract infections
  - vaginal infection or irritation
  - constipation
  - Some medicines can cause bladder control problems that last a short time

Urinary Incontinence

- *Long term*
  - Weak bladder muscles
  - Overactive bladder muscles
  - Weak pelvic floor muscles
  - Damage to nerves that control the bladder
  - BPH
  - Diseases that make it difficult to get to the bathroom in time
  - Pelvic organ prolapse

Age-Related Changes Contributing to Incontinence

In Females

Estrogen deficiency
Weak pelvic floor and bladder outlet
Decreased urethral muscle tone
Atrophic vaginitis

In Males

Increased prostatic size
Impaired urinary flow
Urinary retention
Detrusor muscle instability

Types of Urinary Incontinence

- Stress incontinence
- Urge incontinence
- Overflow incontinence
- Functional incontinence

Urinary Incontinence- Treatment

- Pelvic Floor Muscle Training
- Biofeedback
- Timed voiding
- Lifestyle changes
  - Weight loss
  - Smoking cessation
  - Alcohol abstinence
  - Caffeine-free diet
  - preventing constipation
  - avoiding lifting heavy objects
  - limiting drinks before bedtime

Table 19-9 Management of Urinary Incontinence

Type	Management
Stress *Weakness of pelvic muscles*	Exercises Alpha-adrenergic agonists Estrogen Surgery
Urge *Inability to avoid voiding when bladder full*	Bladder relaxants Surgery
Overflow *overdistended, non-contractile blood*	alpha-adrenergic antagonists Catheterization
Functional *cognitive, emotional problems*	Habit training Scheduled toileting Hygienic devices

Incontinence and Alzheimer's Disease

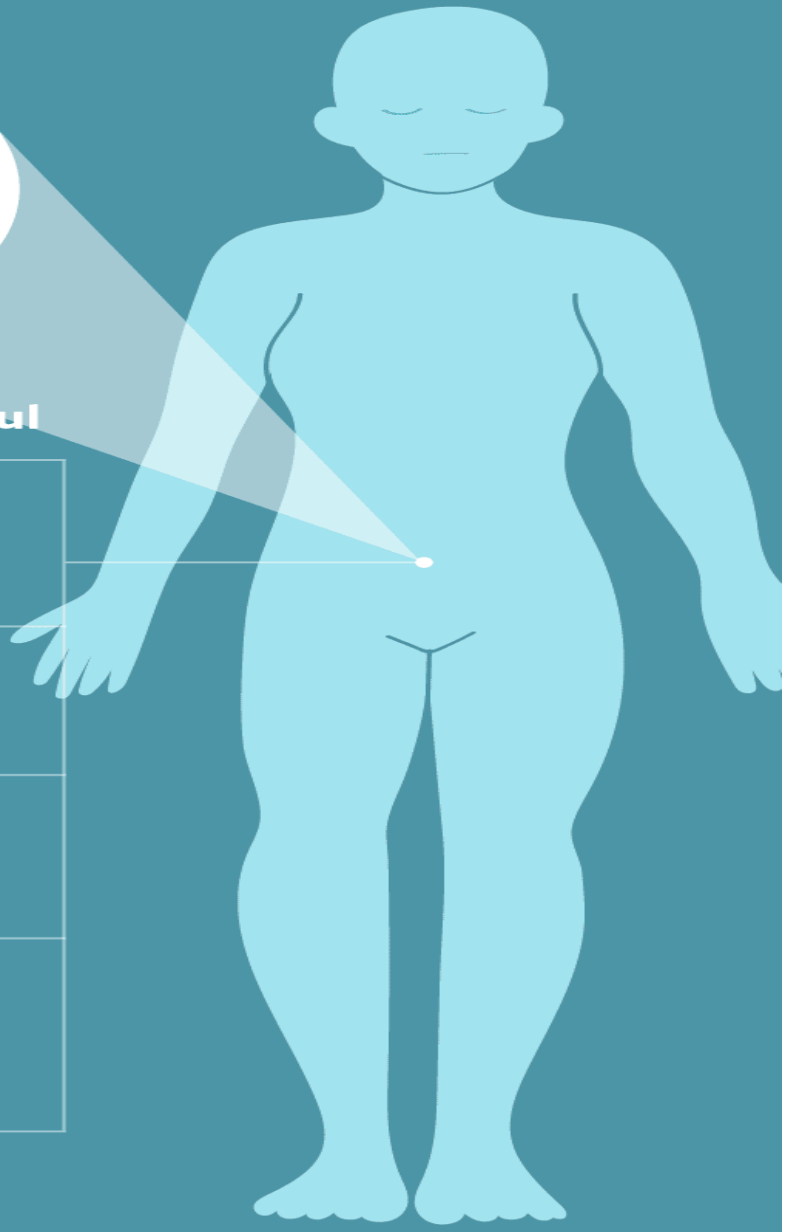
- In later stages of disease
- Causes:
  - Not realizing need to urinate
  - Forgetting to go to bathroom
  - Not being able to find the toilet
- Useful Tips:
  - Avoid caffeine but do not limit fluids
  - Keep pathways clear, with a light on at all times
  - provide regular bathroom breaks
  - Supply underwear that is easy to get on and off
  - Use absorbent underclothes for trips away from home

Urinary Tract Infection

- *Risk factors*
  - Prolonged catheterization
  - Urinary tract anatomic abnormalities
  - Urinary retention (BPH)
  - Comorbid diseases (diabetes, immunosuppression)
  - Urinary catheters avoided unless there is a clear indication
- *Etiology*
  - Gram-negative organisms
  - MDR organisms e.g. pseudomonas and MRSA in residents of nursing facilities or long hospitalization

Lower Urinary Tract Infection

Common Symptoms



- burning or painful urination
- constant urge to urinate
- cloudy urine
- foul odor
- pelvic pain (women)

verywell

Urinary Tract Infection- Presentation

- Asymptomatic bacteriuria does *not* need treatment
- All symptomatic patients should be treated
- Atypical presentations common
  - Incontinence
  - Lethargy
  - Anorexia
  - Altered mental status

Hematuria

Definition

Microscopic (>3 RBC/hpf) or gross

Etiology

- Infection
- Stones
- Renal disease
- Trauma
- cancer

Hematuria

- All hematuric patients need work-up
- UTIs should be ruled out or treated before work-up
  - BUN, creatinine
  - Imaging of the urinary tract
  - Urine cytology
  - Cystoscopy
- All components necessary

Urinary Retention and Catheters

- Indications for urethral catheterization
    - Incontinence with open sacral/perineal wounds
    - Relief of urinary obstruction
    - Accurate inputs and outputs in critical care
    - Bladder dysfunction and urinary retention
    - Continuous bladder irrigation (bleeding or medication)
    - Ease comfort of palliative or hospice care patient
    - Short-term use after surgery


Thank you