Urological Issues in the Elderly Female Patient

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Topics

• Urinary Tract Infections
• Voiding Dysfunction
  A. Urinary incontinence
  B. Urinary Retention
• Hematuria
  - Malignancies

Urinary Tract Infections Definitions

• Bacteriuria: Presence of bacteria in the urine
  - Asymptomatic (colonization or contamination)
  - Symptomatic (infection)
• Pyuria: presence of WBC in the urine (>10/hpf)
• Cystitis: Sx of dysuria, frequency, urgency and suprapubic pain.
• Pyelonephritis: Sx of chills, fever and flank pain with pyuria and bacteriuria.

Urinary Tract Infections Definitions

• Uncomplicated UTI: infection on healthy patient with a structurally and functionally normal urinary tract (women).
• Complicated UTI: Infections in a urinary tract structurally or functionally abnormal, compromised host and/or increased virulence by the invading bacteria (men)
• Unresolved UTI: one that has not responded to ab. therapy
• Recurrent UTI: one that occurs after documented successful treatment of a previous infection
  1. Reinfection: new event causing reintroduction of bacteria
  2. Persistence: UTI caused by the same bacteria reemerging from a focus within the urinary tract (stones, obstruction site or prostate)

Ambulatory visits by patients 65 y-o or older (2001)

<table>
<thead>
<tr>
<th>Specialty</th>
<th>%</th>
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<tbody>
<tr>
<td>Cardiology</td>
<td>58.4</td>
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<tr>
<td>Ophthalmology</td>
<td>48.5</td>
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<tr>
<td>Urology</td>
<td>47.9</td>
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<td>Int. Medicine</td>
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<td>ENT</td>
<td>25.2</td>
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<tr>
<td>Orthopedics</td>
<td>25</td>
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<tr>
<td>Family Practice</td>
<td>24.9</td>
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<td>Psychiatry</td>
<td>9.9</td>
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<tr>
<td>Ob/Gyn</td>
<td>7.1</td>
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Uncomplicated UTI: infection on healthy patient with a structurally and functionally normal urinary tract (women).

Prevalence of bacteriuria in women is 3.5% but it depends on age

<table>
<thead>
<tr>
<th>AGE</th>
<th>Men (%)</th>
<th>Women (%)</th>
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</thead>
<tbody>
<tr>
<td>65-70</td>
<td>2-3</td>
<td>20-21</td>
</tr>
<tr>
<td>&gt;80</td>
<td>21-22</td>
<td>23-50</td>
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Incidence

• They involve 1.2% of visits by women and 0.6% in men
• Prevalence of bacteriuria in women is 3.5% but it depends on age

2/1/2016
Urinary Tract Infections

**Incidence**

- 50% of women will experience an UTI in their lifetime
- 20% of women >65 have bacteriuria
- Institutionalized or hospitalized patients have higher incidence of bacteriuria
- Once a pt has an infection, they are likely to develop more infections.
  - 28% of women after 1st infection will have a recurrence vs 82% of women with several previous UTI

**Frequency of Bacteriuria by Underlying Disease**

![Diagram showing frequency of bacteriuria by underlying disease](image)

**Cumulative % of pts older than 65 with at least one positive culture over 3 surveys at a 6 month interval**

![Graph showing cumulative percent positive cultures](image)

**Pathogenesis**

- Decline in cell-mediated immunity and host antimicrobial factors
- Neurogenic bladder dysfunction
- Increased perineal soiling as a result of fecal/urinary incontinence
- Increased incidence of catheter usage
- Changes in vaginal environment associated to estrogen depletion

**Microbiology of Urinary Tract Infections**

![Graph showing microbiology of UTIs](image)

**Bacteriuria in the Elderly Patient**

- Screening for asymptomatic bacteriuria in the elderly is NOT recommended
- There is no relationship with uncomplicated UTI or worsening renal function
- There is no relationship with survival
- “Significant” Bacteriuria that leads to UTI if there are structural abnormalities or systemic conditions can be clinically significant

![Graph showing microbiology of UTIs](image)
Treatment of Bacteriuria in the Elderly Patient

- Asymptomatic bacteriuria does not require treatment
- If there are symptoms of cystitis, 7 days of therapy is recommended.
  - Frequently, in the elderly pt symptoms are subtle
  - 10 to 14 days in suspected pyelonephritis.
- In case of symptomatic UTI, urine cultures should be obtain, specially in nursing home residents.
- 10-15% resistance to TMP-SMX, B-lactmas and fluoroquinolones

Treatment of UTI in the Elderly Patient

- Urine culture with $\geq 10^5$ cfu/ml + symptoms: should be treated
- Recurrent UTI may require
  A. Urologic evaluation
  B. Treatment can be: short-term, long-term (chronic suppressive therapy) or “prophylactic” therapy which reduces the risk of reinfection but not the underlying predisposition for recurring infection
    - 30-40% on all groups recur within 12 months.

Antibiotic Treatment

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<tr>
<th>First Line</th>
<th>Second Line</th>
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<tbody>
<tr>
<td>Nitrofurantoin (macrobid)</td>
<td>Quinolones</td>
</tr>
<tr>
<td>TMP/SMZ (bactrim)</td>
<td>2nd Gen Cephalosporins</td>
</tr>
<tr>
<td>Trimethoprim</td>
<td>Augmentin</td>
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<tr>
<td>Amoxicillin</td>
<td></td>
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<tr>
<td>Doxycycline</td>
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<td>Fosfomycin</td>
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<th>Third Line</th>
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<tbody>
<tr>
<td>Aminoglycosides</td>
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<tr>
<td>Carbapenems</td>
</tr>
<tr>
<td>Vancomycin</td>
</tr>
<tr>
<td>3rd Gen Cephalosporins</td>
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Hematuria

- 1.- Gross hematuria
- 2.- Microscopic hematuria:
  - 3 or more rbc x hpf on a Urinalysis WITH microscopy (absence of obvious benign cause)
  - results of a dipstick test should be confirmed on urinalysis w/microscopy
  - False positive dipstick: dehydration, myoglobinuria, Vit. C and improper technique among other causes.

Microscopic Silent Hematuria

- 66% of pt evaluated for microscopic hematuria have some explanation
- Malignancy is found in 3.3% (2.2 to 5.5%)
  - Incidence up to 25.5% If there are risk factors: males, smokers, age $\geq 60$, occupational exposure, history of irradiation, gross hematuria, chronic UTI, or indwelling catheters, use of carcinogenic.
- Cytology:
  - Indicated if no explanation for MH, irritative symptoms or other high risk factors.
Asymptomatic Microscopic Hematuria

- UA: >3 rbc with microscopy
- H & P (uti, masses, etc)
- eGFR, Imaging, Cystoscopy cytology
- CT w/o IV contrast
- If can't have iodine contrast: MR urogram
- Renal/bladder sono + KUB retrograde pyelogram

Nephrology evaluation:
- Prostate, correct other signs of nephrologic causes

Follow up UA micro yearly at least for 2 y.
- If persistent, repeat urologic w/u within 3 to 5 years or sooner if indicated


Incontinence

**Terminology**

- Stress incontinence: symptomatic complaint of involuntary leakage on effort or exertion, or on sneezing or coughing
- Urgency: the sudden, compelling desire to pass urine, which is difficult to defer
- Nocturia: waking up one or more times to void and usually is “sleep-disturbing voiding”
- Frequency: when the pt considers is voiding too often
- OAB: urgency with or without urge incontinence, usually with frequency and nocturia
- Mixed incontinence: combination of urge and stress incontinence

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Voiding Dysfunction

**Prevalence/Epidemiology**

- Any incontinence 25 to 45% of all women
- Daily incontinence 5 to 15%
- Women older than 70 y is >15%
- Mixed and urge incontinence more prevalent
- Higher prevalence if in long term facilities
- Severe, costly, great burden to caregivers and lower QOL
- Increase in Fall risk (OR 1.3) and nursing home admissions
- Prevalence of organ prolapse is 5 to 10%
- 20 to 50% pt with prolapse have OAB
- 40% of pts with incompetent sphincter and stress incontinence have cystocele

Voiding Physiology

**Filling Phase**

- Altered sensation

**Storage Phase**

- Urgency, frequency, nocturia, incontinence

**Emptying Phase**

- Hesitancy, straining, slow stream, incomplete voiding

Voiding Dysfunction

**Failure to Store**

- a) Because of the bladder
  - Involuntary contractions
  - Decrease compliance
  - Hypersensitivity
  - Combination
- b) Because of the outlet
  - Combination (uro genic)
- Genuine stress incontinence
- Intrinsic sphincter deficiency
- c) Combination

Voiding Dysfunction

**Failure to empty**

- a) Because of bladder
  - Neurogenic
  - Myogenic
  - Psychogenic
  - Idiopathic
- b) Because of the Outlet
  - Anatomical (prostate, stricture)
  - Functional (dysynergia, dysfunctional voiding)
- c) Combination

Causes of Detrusor Overactivity

**NEUROGENIC DO**

- Supraspinal neurologic lesions
  - Stroke
  - Parkinson Disease
  - Hydrocephalus
  - Brain tumor
  - TBI
  - Dementia
  - Multiple sclerosis
  - Suprasacral spinal lesions
  - Spinal cord injury
  - Spinal cord tumor
  - Multiple Sclerosis
  - Myelodyplasia
  - Transverse myelitis
  - Diabetes Mellitus

**IDIOPATHIC DO**

- No neuro lesion evident
- Bladder infection
- Outlet obstruction
  - women: pelvic prolapse, post surgical, urethral diverticulum,
  - Bladder neck or urethral stricture
  - Bladder tumor
  - Bladder stones
  - Foreign bodies
  - Aging

Campbell's Urology 10th ed. 2012 ; 1876
**Urological Evaluation of Voiding Dysfunction**

- Urinary Retention—always obtain PVR
- Neurogenic Bladder
- Presence of Hydronephrosis
- Urge incontinence Refractory to medical treatment
- Stress incontinence in a pt candidate for surgery
- Previous failed procedure for incontinence
- Presence of organ prolapse (grade 3 and 4 cystocele)

**Overactive Bladder (OAB) Treatment**

- Pelvic Physical Therapy
- Oral Medications (Anticholinergics)
  - Oxybutynin [dilutan]
  - Tolterodine [detrol]
  - Trospium [Sanctura]
  - Solifenacin [Vesicare]
  - Darifenacin [Enablex]
  - Fesoterodine [Toviaz]
- B-3 receptor agonist (Myrbetriq [Mirabegron])

**Urodynamic Evaluation**

**Surgical Interventions**

- Intravesical Botulinum Toxin injection
- Tibial nerve stimulator
- Interstim

**NEJM 348;23  June 5, 2003**