URINARY TRACT INFECTIONS IN THE ELDERLY

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OBJECTIVES

Differentiate between asymptomatic bacteruria and UTI

Learn geriatric “pearls” in identifying, preventing and treating UTIs in elderly

Review antibiotic treatment guidelines for UTIs in elderly

Discuss techniques in preventing both complicated and uncomplicated UTIs in elderly

Understand risks associated with use of Indwelling Urinary (foley) catheters
DISCLAIMER

This presentation is a synopsis of both Infectious Disease Society of America (IDSA) as well as the Centers for Disease Control (CDC) recommendations for the recognition and management of urinary tract infections. These are just two of a handful of guidelines from other academic or governing bodies. If your institution uses other guidelines, then please refer to those. Additionally, I may be unfamiliar with other published guidelines or your institutional guidelines.
DEFINITIONS

Urinary Tract Infection (UTI) aka Acute Uncomplicated Cystitis – infection of the bladder (lower urinary tract)
- Symptomatic UTI (SUTI) - occurs with manifestation of signs/symptoms of infection which localize to urinary tract. These same signs/symptoms in those with an indwelling urinary catheter are
- Catheter Associated UTI (CAUTI) – manifestation of signs symptoms of infection localized to urinary tract in those with indwelling catheter or removed within 2 days.
- Catheter Asymptomatic Bacteriuria (CA-ASB) – Presence of > or = 10^5 cfu/ml of > or = 1 bacterial species in a catheter urine specimen in patient with an indwelling urethral or suprapubic catheter without symptoms.

Pyelonephritis – infection of the upper urinary tract (ureters / renal collecting system / kidneys).

Asymptomatic Bacteriuria (ASB) – Isolation of a specific count of bacteria in a urine specimen from an individual w/o signs or symptoms of UTI.
DEFINITIONS, CONT

Can be localized to either lower or upper urinary tract

Complicated UTI (cystitis)

- Diabetes
- Pregnancy
- H/O pyelonephritis
- Hospital acquired infection
- Urinary Tract Obstruction (men)
- Catheter (or recent catheterization in prior 48 hours)
- Childhood h/o UTIs
- Immunosupression
- Renal Transplant
INTRODUCTION, CONT

Population
- 63% are 65 or >
- Current population in LTC is 6.3 million
- By 2050 total number of individuals needing paid LTC/Institutional LTC will double to around 27 million
- Infection / Illness often times presents differently in aged >> lack of fever / blunted white cell count / mental status changes / functional decline / anorexia / agitation
UTI IN LTC

Primary cause of bacteremia in LTC residents is due to UTIs
Incidence of symptomatic UTIs in elderly in LTC around 10%
Prevalence of asymptomatic bacteriuria in women approx. 30% and 10% in men
- Why so common?
UTI IN LTC

Risk Factors

- Physiologic changes of bladder / urethral flora w/ age (post/menopausal women)
- Use of indwelling catheters
- Congregate living
- Functional / Cognitive Impairment
  - Decrease self care
  - Decrease cues to void
  - Difficulty finding bathroom / suitable location to void
  - ?Elevated Post Void Residual Volume of Urine?
UTI SURVEILLANCE CRITERIA
(CDC 2010)
Diagnostic Criteria for symptomatic UTI in those w/o indwelling catheter (1a OR 2a OR 3a)

- Criteria 1a
  - Acute dysuria, pain, swelling/tenderness of prostate/testes

- Criteria 2a
  - Fever or leukocytosis AND at least 1 of following
    - CVA tenderness
    - Suprapubic pain
    - Hematuria
    - Marked increase/new onset incontinence

- Criteria 3a
  - Suprapubic pain
  - Hematuria
  - Marked increase/new onset incontinence
  - AND
    - At least 10(5) cfu/ml of no more than 2 species of bacteria in voided urine
    - At least 10(2) cfu/ml of any number of organisms in a straight cath.
GUIDELINES, CONT

In patients with Indwelling catheters

- Must demonstrate at least one of the following
  - Fever/chills or new onset hypotension without evidence of other source of infection
  - Acute change in mental status or functional decline AND leukocytosis without alternate site of infection
  - New onset suprapubic pain or CVA pain
  - Purulent discharge from catheter site OR acute pain/swelling/tenderness of tests/prostate.

- AND if catheter removed within last 2 calendar days
  - At least $10^5$ cfu/ml of no more than 2 organisms from voided urine OR positive culture of at least $10^2$ of any organisms from straight catheterization
  - IF catheter still in place then culture with at least $10^5$ of any organisms from an indwelling catheter specimen.
TREATMENT – WITH CATHETER

Treatment

- Empiric Tx based on gram stain.
- Gram (-) bacilli - 3rd gen cephalosporin (ceftriaxone, cefpodoxime) OR cipro/levo. P. Aeruginosa may use cipro / ceftazadime.
- Gram (+) vancomycin pending susceptibility
- Usually 10 to 14 days of tx
- When to change foley catheter?
  - IDSA guidelines do not recommend routine exchange
  - IF CA-UTI is suspected, then ideally remove catheter, obtain clean catch urine from newly exchanged catheter and base tx on that culture.
  - Antimicrobial coated catheters can be considered for use.
Approach to choosing an optimal antimicrobial agent for empirical treatment of acute uncomplicated cystitis.


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UTI IN MEN (COMPLICATED)

Pathogens similar to women.
- Differential Dx >> prostatitis (acute or chronic), urethritis.

Diagnosis and Treatment extrapolated from women >>

Clinical – dysuria, frequency, urgency, suprapubic pain (same as prior slide) with following considerations (Up To Date 2016)

Urine culture in med use count of > or equal to 10 (4) vs 10 (5) of single isolated CFU / ml.
Isolated bacteria in men similar to women – E. coli (75 to 90%), Proteus mirabilis, Klebsiella pneumoniae
Recurrent UTI in Men – further evaluation warranted (e.g. chronic prostatitis, consider urologic referral)
ASYMPTOMATIC BACTERIURIA (ASB)

ASB in LTC
- Women
  - 2 consecutive clean catch midstream urine samples of $> 10^5$ cfu/ml w/o symptoms associated w/ UTI and no catheter within 7 days of first sample
- Men
  - Single clean catch midstream of $>10^5$ cfu/ml w/o symptoms associated with UTI and no catheter
- Longer term sequela of bacteriuria not known
- Treatment not shown to reduce symptomatic UTI, improve mortality nor decrease in prevalence of bacteriuria (i.e. no indication for eradication therapy).

Common – perhaps 55% of women in LTC and 30% of men
PREVENTION AND OTHER ISSUES

Prevention of UTI in LTC

- Most studies have focused on younger / pre-menopausal women
- (McMurdo study age 45 to 92 – see below)
- General
  - Hygiene
  - Prompted / assisted voiding
  - Bowel regimen
PROPHYLAXIS, CONT.

- McMurdo (2009) 500mg daily of cranberry extract vs 100mg of trimethoprim daily x 6 months. In adult women w/ recurrent UTIs, cranberry no different than trimethoprim in reducing developing new uti.
  - Prophylaxis against recurrent UTI (>3 utis within 12 mos. OR >2 within 6 mos). Studies have shown benefit of co-trimoxazole, nitrofurantoin, quinolones, b-lactams in reducing recurrent utis vs placebo. No guidelines.
  - Oral Estrogens not shown to be beneficial. Topical, vaginally applied estrogens have been shown to be effective in smaller studies (though sample was post-menopausal)
  - Summary – Current mainstream guidelines (IDSA, Cochrane Reviews) state that there is insufficient evidence for use of cranberry juice/extract.
PREVENTION AND OTHER ISSUES

Prevention of CA-UTI

- Identify those patients who meet clinical criteria for long/short term placement of indwelling
  - Obstruction
  - Neurogenic bladder
  - Hematuria (short term)
  - Surgery (short term)
  - Wounds stage 3 or >
  - Aggressive diuresis / monitoring of strict I/O (short term)
  - Terminally ill for comfort measures

- Develop policies for independent removal and education on technique for placement and management of device and collecting bag
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