

DoM

DEPARTMENT
of MEDICINE
Improving Lives

OBJECTIVES FOR COMMON CLINICAL PROBLEMS

Urinary Tract Infection

A. KNOWLEDGE: Students should be able to:

1. Summarize the epidemiology, pathogenesis, and pathophysiology of urinary tract infections, noting the differences between men and women
2. Name the most common microorganisms that cause uncomplicated and complicated urinary tract infections in the community setting
3. Outline the pathogenesis of urosepsis
4. Describe the usual clinical presentation of urinary tract infection and urosepsis
5. Identify the empiric antimicrobial therapy for complicated and uncomplicated UTI (including urosepsis) and outline the pharmacokinetics of the most commonly used agents to treat UTI

B. SKILLS: Students should be able to demonstrate specific skills including:

1. History-taking Skills: Students should be able to obtain, document, and present a medical history that contributes to the accurate diagnosis of urinary tract infection and urosepsis, including:
 - History of presenting illness:
 - the presence and pattern of dysuria
 - frequency
 - nocturia
 - urgency
 - suprapubic pain
 - flank pain
 - perineal pain
 - testicular pain
 - hesitancy
 - decreased urinary output

- fever
 - rigors
 - confusion (in the elderly)
 - hypotension
 - shock
 - Past medical history that might point to a risk for UTI and urosepsis:
 - Prior UTI
 - Structural kidney disease, including renal calculi
 - Indwelling urinary catheter
 - Prostatic hypertrophy
 - Pregnancy
 - Diabetes mellitus
 - Recent (within the last 3 months) antimicrobial use
 - Family history that might point to familial and genetic conditions that may be associated with UTI:
 - Structural kidney disease, including renal calculi
 - Social and personal factors that might represent a risk for UTI:
 - Sexual activities (relation of symptoms to intercourse)
2. Physical exam skills: Students should be able to perform a physical exam to establish the diagnosis and severity of UTI and urosepsis, including:
- Accurate determination of vital signs (BP, P, RR, T),
 - Determination of altered cognition,
 - Palpation for flank and suprapubic tenderness,
 - Percussion for bladder distension,
 - Identifying the presence of indwelling devices (e.g.: urethral catheters, nephrostomy tubes, ureteral stents)
 - Genital examination where appropriate to excluded the diagnosis of vaginitis, cervicitis, prostatitis, epididymitis, and urethritis
3. Differential diagnosis: Students should be able to generate a differential diagnosis recognizing specific history and physical exam findings that suggest the presence of a UTI rather than other processes, including:
- Renal calculi
 - Sexually transmitted diseases (e.g.: Gonococcal or non-gonoccal urethritis, HSV)
 - Vaginitis
 - Epididymitis
 - Asymptomatic bacteriuria
 - Interstitial cystitis

4. Laboratory investigation: Students should know when to order and how to interpret diagnostic and laboratory tests based on the differential diagnosis.

These may include:

- CBC with differential
- Urinalysis
- Urine culture
- Blood cultures
- Renal ultrasound
- CT scan of the abdomen

5. Management skills: Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:

- Recognizing that most patients with asymptomatic bacteriuria do not warrant antimicrobial therapy
- Knowing which patients with asymptomatic bacteriuria warrant antimicrobial therapy
- Selecting an appropriate empiric antimicrobial regimen for uncomplicated and complicated UTI, taking into consideration recent antimicrobial use and possibility of renal dysfunction that may impact on choice of agent
- Adjusting the antimicrobial treatment according to the results from urine and/or blood cultures
- Monitoring therapy for response and adverse effects (e.g. watching for nephrotoxicity and ototoxicity if an aminoglycoside is prescribed)
- Investigating for complicated UTI (e.g.: in association with obstruction or renal calculi, renal abscess) in the patient who does not respond appropriately to antimicrobial therapy
- Recognizing when an Infectious Diseases consultation is indicated
- Recognizing when a Urology consultation is indicated
- Knowing where to access and how to apply the current appropriate UTI management guidelines