

Lecture 2



Treatment of Urinary Tract Infection

- Additional Notes
- Important
- Explanation
- Examples

Treatment of UTI

- The goal of treatment is: to eradicate the offending organisms from the urinary bladder tissue.
- The main treatment of UTI is by **antibiotics**. And it depends on:
 - ✓ Complicated or Uncomplicated UTI
 - ✓ Primary or recurrent infection
 - ✓ Type of patient: “pregnant women, children, hospitalized patients, diabetic patients
 - ✓ Bacterial count
 - ✓ Presence of symptoms
- Uncomplicated UTI:
 - ✓ Low-risk patient (woman) for recurrent infection.
 - ✓ 3-days antibiotic without urine test.
 - ✓ Cure rate 94%.
- Complicated UTI:
 - ✓ 10 to 14 days antibiotics.

Antibiotics

- Choice of antibiotic depend on susceptibility pattern ,include:
 - ✓ Amoxicillin (with or without clavulanate)
 - ✓ Cephlosporins (first or second generation)
 - ✓ TMP-SMX
 - ✓ Nitrofurantoin (Long term use).
 - Used only in lower UTI.
 - ✓ Fluoroquinolone (Ciprofloxacin or Norfloxacin)
 - Contraindicated in pregnant women and children due to cartilage deformity.
 - First choice if other antibiotics are resistant.

Recurrent infections

- Patients with two or more symptomatic UTIs within 6 months or 3 or more over a year may developed some
- **Need preventive therapy, by prophylactic antibiotics.**
 - ✓ Most common drugs used are nitrofurantoin and TMP.
- Antibiotic taken as soon as symptoms develop.
- If infection occurs less than twice a year, a clean catch urine test should be taken for culture and treated as initial attack for 3 days.
- Postcoital antibiotics:
 - ✓ If recurrent UTI related to **sexual activity**, and episodes recur more than 2 times within 6 months, A **single preventive dose** taken immediately after intercourse
 - ✓ Antibiotics include: **TMP-SMX, Cephalexin or ciprofloxacin**

Pyelonephritis

Uncomplicated

- Symptoms: fever, chills, flank pain. Healthy patients non-pregnant no signs of kidney involvement.
- Always collect urine for culture
- Treatment: orally at home for 10-14 days using **Ciprofloxacin, Ceftriaxone, Aminoglycosides or TMP-SMX**
- Avoid **Nirofurantoin**

Moderate to severe

- Patients need hospitalization
- Treatment: IV route for 3-5 days until symptoms relieved for 24-48 hrs → **Ciprofloxacin or Ceftriaxone** for 10-14 days.
- If fever and back pain continues after 72 hrs of antibiotics, imaging may be indicated for abscess, obstruction or other abnormality

Chronic

- Patients need **long-term antibiotics** treatment even during period when they have no symptoms.

Pregnant women

- High risk for UTI and complications, Should be screened for UTI
- Antibiotics during pregnancy include:
 - ✓ Amoxicillin
 - ✓ Ampicillin
 - ✓ Cephalosporins
- Pregnant women should **NOT** take **quinolones, Nitrofurantoin or TMP-SMX.**
- Pregnant women with **asymptomatic bacteriuria** (evidence of infection but no symptoms) have 30% risk for acute pyelonephritis in the second or third trimester.
- Screening and 3-5 days antibiotic needed.
- For uncomplicated UTI, need 7-10 days antibiotic treatment.

Catheter induced infections

- Catheterized patients who develop UTI with symptoms or at risk for sepsis should be treated for each episode with antibiotics and catheter should be removed, if possible.
- Associated organisms are constantly changing.
- May be multiple species of bacteria.
- Antibiotic use for prophylaxis is rarely recommended since high bacterial counts present and patients do not develop symptomatic UTI.
- Antibiotic therapy has little benefit if the catheter is to remain in place for long period.
 - ✓ If catheter required for long-periods ,it is best to be used intermittently.
 - ✓ May be replaced every 2 weeks to reduce risk of infection and irrigating bladder with antibiotics between replacements

Children with UTI

- Usually treated with **TMP-SMX** or **Cephalexin**.
- Sometimes given as IV.
- **Gentamicin** may be recommended as resistance to cephalexin is increasing.
- Vesicoureteric reflux (VUR):
 - ✓ Common in children with UTI
 - ✓ Can lead to pyelonephritis and kidney damage.
 - ✓ Long-term antibiotic + surgery used to correct VUR and prevent infections.
 - ✓ Acute kidney infection: use **Cefixime (Suprax)** or **Gentamicin** in a one daily dose, Oral antibiotic then follows IV.

Diabetic patients and Urethritis

- Diabetic patients:
 - ✓ Have more frequent and more severe UTIs.
 - ✓ Treated for 10-14 days antibiotics even patients with uncomplicated infections.

- Urethritis in men:
 - ✓ Require 7 days regimen of Doxycycline.
 - ✓ A single dose Azithromycin may be effective but not recommended to avoid spread to the prostate gland.
 - ✓ Patients should also be tested for accompanying STD “Sexually transmitted disease”

REMEMBER !

- Antibiotics that CANNOT be used for pregnant: “CANTS”
 - ✓ Ciprofloxacin
 - ✓ Aminoglycosides.
 - ✓ Nitrofurantoin.
 - ✓ Tetracyclines
 - ✓ Sulfonamides.
- Antibiotics that CANNOT be used for children:
 - ✓ Ciprofloxacin “under 18”
 - ✓ Tetracyclines “under 8” (double check if it less than 8 or less than 7)

Quiz

1. A 20-year old female came to ER and physician prescribed her Amoxicillin. Which statement of the following is most likely true?:

- a) Amoxicillin for 3 days with urine test b) Amoxicillin for 3 days without urine test
c) Amoxicillin for 10 days with urine test d) Amoxicillin for 10 days without urine test

2. Patient has recurrent UTI. What is the most appropriate antibiotic for prophylaxis?

- a) Nitrofurantoin b) Tetracycline c) Amoxicillin d) Gentamicin

3. Which of the following is considered as a dangerous side effect for Sulfamide?

- a) Bone deformity b) Cartilage damage c) Steven Johnson syndrome

4. A 3-year old male develops UTI. What do you think the most predisposing factor in his case?

- a) Short urethra b) Urinary tract abnormalities c) Catheter d) Diaper

Quiz

5. Which of the following cases are highly needed for consulting a doctor.

- a) If the patient is diabetic
- b) if the patient is young adult
- c) If the patient is pregnant
- d) a and c

6. A pregnant woman with ASYMPTOMATIC BACTERIURIA. what is the management in this case?

- a) Give her ceftriaxone because it's safe for pregnancy
- b) Give her tetracycline because it's safe for pregnancy
- c) She has a risk for acute pyelonephritis. So, screening and 3-5 days of ampicillin.

7. What is the best sample to diagnose UTI?

- a) Urine sample 48 hrs after starting the symptoms
- b) Early morning urine sample
- c) Blood culture