

Management of Urinary Tract Infections

Renal Block

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Objectives

- 1 – Know the principal goal of management of urinary tract infection (UTI)
- 2– Understand that management of UTI depends on several factors .
- 3– Know that antibiotics are the main treatment of UTI.
- 4– Know the management/treatment of different conditions of UTI (*cystitis, pyelonephritis, catheter associated UTI ,etc.*)



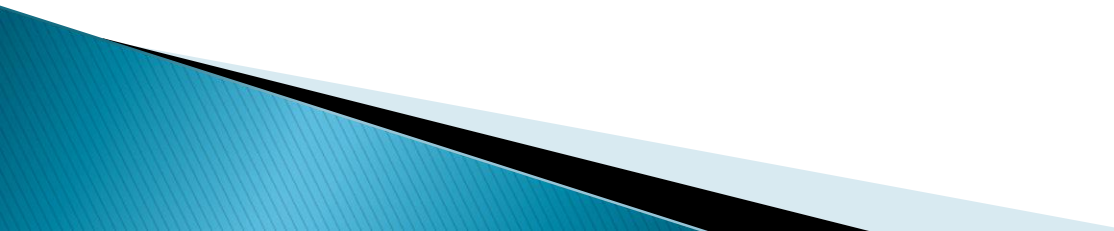
Goal of Management of UTI

The principal goal of management of UTI is to eradicate the offending organisms from the urinary bladder and tissues.

The main treatment of UTI is by antibiotics.



Choice of antibiotic depends on:

- ▶ Whether infection is complicated or uncomplicated.
 - ▶ Whether infection is primary or recurrent.
 - ▶ Type of patient (pregnant ,child , hospitalized or not, diabetic patient,.....etc)
 - ▶ Bacterial count.
 - ▶ Presence of symptoms.
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Uncomplicated UTI

Low-risk patient (woman) for recurrent infection:

3 days antibiotic without urine test.

Cure rate 94%.

Choice of antibiotic depend on susceptibility pattern of bacteria, it includes ;

Amoxicillin (with or without clavulanate)

Cephlosporins (first or second generation)

Fluoroquinolone (ciprofloxacin or norfloxacin)
(not for pregnant women or children) ,first
choice if other antibiotics are resistant.

TMP-SMX (trade names: Bactrim, Septra
,Cotrimoxazole)

Nitrofurantoin (for long term use)



Relapsing infection

Caused by treatment failure or structural abnormalities or abscesses.

Antibiotics used at the initial infection

Treatment for 7–14 days.

Recurrent infections

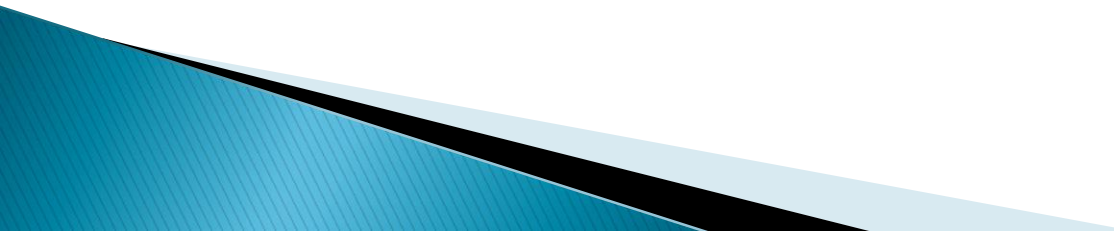
Patients with two or more symptomatic UTIs within 6 months or 3 or more over a year.

Need preventive therapy

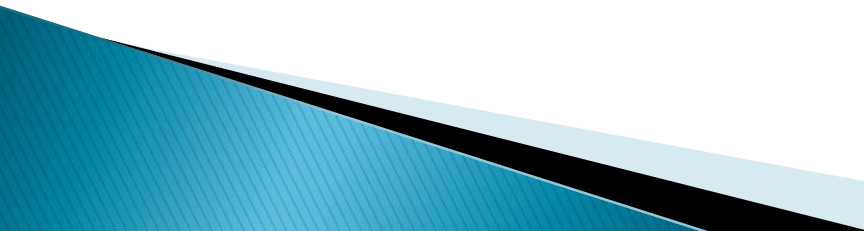
Antibiotic taken as soon as symptoms develop.

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.

When to consult the doctor ?

- ▶ If symptoms persist
 - ▶ A change in symptoms
 - ▶ Pregnant women
 - ▶ More than 4 infections per year
 - ▶ Impaired immune system
 - ▶ Previous kidney infections
 - ▶ Structural abnormalities of urinary tract
 - ▶ History of infection with antibiotic resistant bacteria.
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Postcoital antibiotics

- ▶ If recurrent UTI is 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
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Prophylactic antibiotics

- ▶ Optional for patients who do not respond to other measures.
- ▶ **Reduces recurrence by up to 95%**
- ▶ **Low dose antibiotic taken continuously for 6 months or longer, it includes :**
TMP-SMX, Nitrofurantoin, or Cephalexin
- ▶ Antibiotic taken at bed time more effective.

Uncomplicated pyelonephritis

- ▶ Patients with fever, chills and flank pain ,but they are healthy non–pregnant ,not nauseous or vomiting with no signs of kidney involvement.
- ▶ Can be treated at home with oral antibiotics for 14 days with one of the followings:
Cephalosporins, Amoxicillin–Clavulanate, Ciprofloxacin or TMP–SMX.
- ▶ First dose may be given by injection

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- ▶ A urine culture may be obtained within one week of completion of therapy and again after 4 weeks.



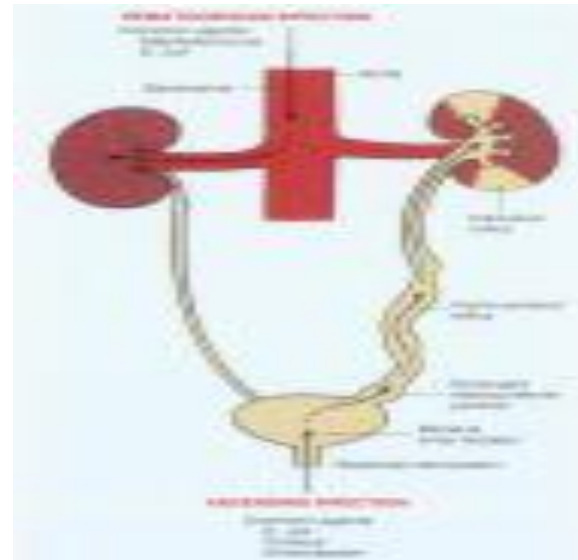
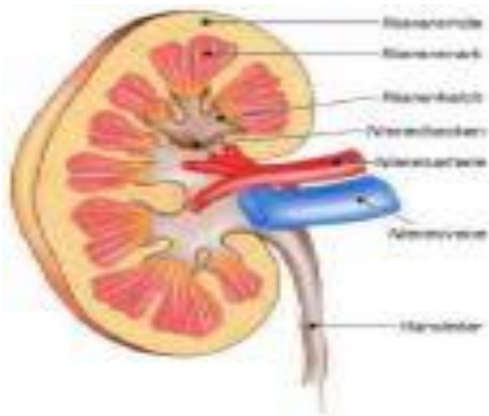
Moderate to severe pyelonephritis

Patients need hospitalization

- ▶ Antibiotic given by **IV route** for 3–5 days until symptoms relieved for 24–48 hrs.
- ▶ If fever and back pain continue after 72 hrs of antibiotic, **imaging tests** indicated to exclude abscesses, obstruction or other abnormality.

Chronic pyelonephritis

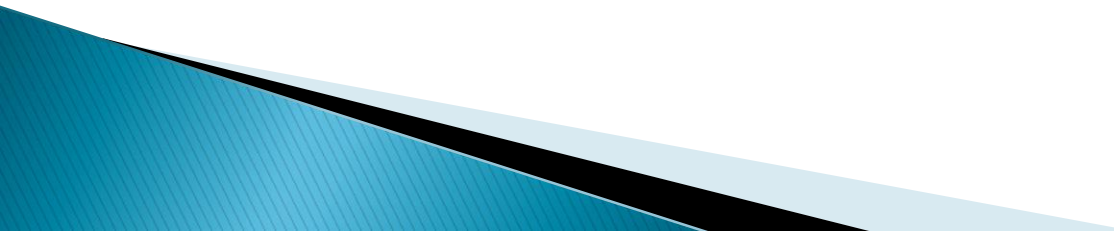
Those patients need long-term antibiotic treatment even during periods when they have no symptoms.



Treatment of specific populations

Pregnant women

- ▶ High risk for UTI and complications
- ▶ Should be screened for UTI
- ▶ Antibiotics during pregnancy includes;;
Amoxicillin, Ampicillin, Cephalosporins, and Nitrofurantoin.
- ▶ Pregnant women should **NOT** take Quinolones.

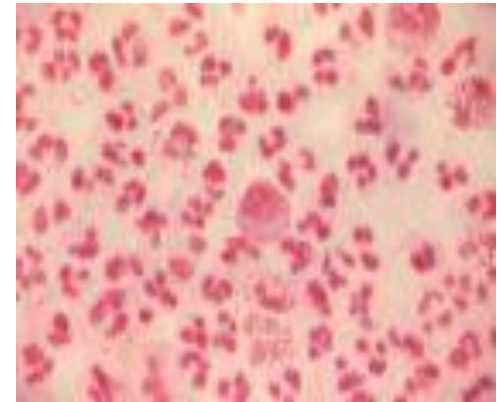
- ▶ Pregnant women with **asymptomatic bacteriuria** (*evidence of infection but no symptoms*) have 30% risk for acute pyelonephritis in the second or third trimester.
 - ▶ Screening and 3–5 days antibiotic needed.
 - ▶ For uncomplicated UTI, need 7–10 days antibiotic treatment.
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Diabetic patients

- ▶ Have more frequent and more severe UTIs.
- ▶ Treated for 7–14 days with antibiotics even patients with uncomplicated infections.

Urethritis in men

- ▶ Require 7days regimen of **Doxycycline**.
- ▶ A single dose **Azithromycine** may be effective but *not recommended* to avoid spread to the prostate gland.
- ▶ Patients should also be tested for accompanying STD.



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 **plus** surgery used to correct VUR and prevent infections.
- ▶ Acute kidney infection : use **Cefixime** (Suprax) **or** 2–4 days **Gentamicin** in a one daily dose. Oral antibiotic then follows IV.



Grade V

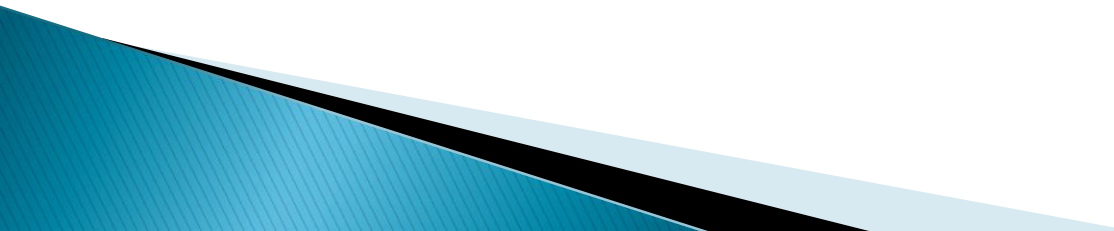
Management of catheter-induced UTI

- ▶ Very common
- ▶ Preventive measures important
- ▶ Catheter should not be used unless absolutely necessary and they should be removed as soon as possible.

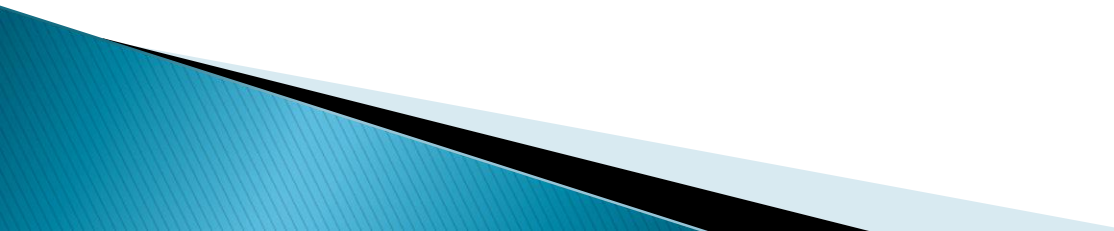




Intermittent use of catheters

- ▶ If catheter is 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
 - ▶ **Daily hygiene and use of closed system to prevent infection.**
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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.
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- ▶ 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.**