

# UTI'S

|                                       |  |  |   |  |  |                        |  |  |
|---------------------------------------|--|--|---|--|--|------------------------|--|--|
| <b>UTI</b>                            | Upper urinary tract infections *most serious*  |  |   |  | Kidneys and ureter   |                        |  |  |
|                                       | Lower urinary tract infections   |  |   |  | Bladder , urethra and prostate   |                        |  |  |
| <b>Bacteria responsible of UTI.</b>   | <b>Gm- bacteria (most common):</b>   |  | <b>Gm+ bacteria :</b>   |  | limited to urethra, unlike E.coli may be <b>sexually transmitted</b>   |                        |  |  |
|                                       | <ul style="list-style-type: none"> <li>- <b>E.coli</b></li> <li>- Proteus mirabilis</li> <li>- Klebsiella</li> <li>- Pseudomonas aeruginosa</li> </ul> |  | <ul style="list-style-type: none"> <li>- Staphylococcus</li> <li>- Saprophyticus</li> </ul> |  | <ul style="list-style-type: none"> <li>• Mycoplasma</li> <li>• Chlamydia trachomatis</li> <li>• N. gonorrhoea</li> </ul> |                        |  |  |
| <b>Treatment of UTI (Antibiotics)</b> | <b>Co-trimoxazole</b><br>(used in recurrent UTI)   | Sulfamethoxazole (SMX)                                     | Alone, each agent is <b>bacteriostatic</b><br>Together they are <b>bactericidal</b>         | Inhibition of (Dihydropteroate synthetase) to inhibit Nucleic acid synthesis | More Binding protein (70)  | <b>Adverse effects</b> | <b>Acute hemolytic anemia</b> (G6PD)   | CONTRAINDICATIONS<br>1. Pregnancy<br>2. Nursing mother<br>3. Infants under 6 weeks<br>4. Renal or hepatic failure<br>5. <b>Blood disorders</b> |
|                                       |  | Trimethoprim (TMP)<br>(concentrate in the prostatic fluid) |   | Inhibition of (Dihydrofolate reductase ) to inhibit Nucleic acid synthesis   |  |                        |  |  |
|                                       | <b>Nitrofurantoin</b><br>( first line in treatment only in <b>uncomplicated lower UTI</b> )<br><b>Not</b> use in Upper or systemic infection.          | Gram – only <b>E.coli</b> and Gram +                       | <b>Bactericidal</b>   | inhibits various enzymes and damages DNA.                                    | -Concentrated in the urine<br>-Urinary pH is kept <5.5( <b>acidic</b> )<br>-It turns urine to a dark <b>orange-brown</b> |                        | <b>hemolytic anemia</b> (G6PD)   | CONTRAINDICATIONS<br>-G6PD deficiency<br>-Neonates<br>-Pregnancy   |
|                                       | <b>Tetracycline</b><br>(used in UTI's and chronic Prostatitis due to <b>Mycoplasma &amp; Chlamydia</b> )   | <b>Doxycycline (reversibly)</b>                            |   | <b>Bacteriostatic</b>  | Inhibit protein synthesis by binding <b>reversibly</b> to 30s subunit  |                        |  |  |
|                                       | <b>Aminoglycosides</b><br>Used in Severe infections caused by <b>gram - (pseudomonas or enterobacter).</b>   | <b>GENTAMICIN (irreversible)</b>                           | <b>Bactericidal</b>   |  | Inhibits protein synthesis by binding <b>irreversibly</b> to 30S ribosomal subunits                                      |                        | <b>More active in alkaline medium</b>  | -Otototoxicity<br>-Nephrotoxicity<br>-Neuromuscular blocking effect  |
|                                       | <b>Cephalosporins</b><br>(used in Sever and complicated UTI and prostatitis )  | 3 <sup>rd</sup> generation :<br>Ceftriaxone & Cefazidime   |   | <b>Acts by inhibition of cell wall synthesis</b>                             | Given IV   |                        | -hypesensitivity reaction<br>-thrombophlebitis.  |  |
|                                       | <b>Quinolones</b><br>UTIs caused by multidrug <b>resistance</b> organisms as <b>pseudomonas.</b><br>And prostatitis.                                   | Fluroquinolones (ciprofloxacin)                            |   | Inhibits DNA gyrase enzyme   |  |                        | <b>Damage of growing cartilage (arthropathy)</b><br><small>Because of that we can not give it to children.</small> |  |

| Antibiotics   |   |   |   |  |
|---|---|---|---|--|
| Used for recurrent cases for <b>prophylactics</b>                                     | <b>Recommended</b> during pregnancy   | <b>Contraindicated</b> during pregnancy   | <b>Recommended</b> In children  | <b>Contraindicated</b> in children   |
| <ul style="list-style-type: none"> <li>- TRM-SMX</li> <li>- Nitrofurantoin</li> </ul> | <ul style="list-style-type: none"> <li>- Amoxicillin</li> <li>- Cephalosporins</li> </ul> | <ul style="list-style-type: none"> <li>- Aminoglycosides</li> <li>- Tetracycline</li> <li>- Nitrofurantoin</li> <li>- Chloramphenicol</li> <li>- Metronidazole</li> </ul> | <ul style="list-style-type: none"> <li>- TRM-SMX</li> <li>- Cephalosporins</li> <li>- Penicillins</li> <li>- <b>Gentamicin</b> 'with precaution'</li> </ul> | <ul style="list-style-type: none"> <li>- Tetracycline</li> <li>- Quinolones</li> </ul> |

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