




# URINARY TRACT INFECTION



# Definition

- UTIs, which are characterized by the presence of bacteria in the urine along with the systemic sign of infection
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# Etiology

1. Bacterial infection-E.Coli, Group B streptococci, Klebsiella pneumonia, Proteus species, Enterobacter species, Enterococcus,
2. Viral & fungal infection
3. Urinary tract obstruction-congenital/acquired
  - Hydronephrosis, Phimosi
4. Voiding dysfunction resulting in stasis-Neurogenic bladder & bladder instability & constipation




5. Anatomic differences-Young girls has short urethra

6. Individual susceptible to infection

7. Reflux-Vesicoureteral reflux

8. Toddler –during toilet training-urinary retention or incomplete bladder emptying



9. Sexually active adolescent girls




# INCIDENCE

- 3-5% in girls & 1% in boys
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# PATHOLOGY


- Fecal bacteria colonize the perineal area or under the prepuce of uncircumcised infant boys
- Bacteria adhere to epithelial cells in the urinary tract & then ascend through the urethra into the bladder(cystitis) ie bladder is inflammed & edematous
- Incomplete bladder emptying causes further bacterial growth
- Bacteria ascends from bladder into the ureter & up into the renal paranchyma cause pyelonephritis

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- Scarring develops as a inflammatory consequences of pyelonephritis
  - Decreased arterial perfusion to the kidney
  - Volume depletion(hypovolemia)
  - Triggers renin-angiotensin mechanism to increase aldosterone release
  - Sodium & water retention
  - Hyertension



# MANIFESTATIONS

## INFANTS

- Nonspecific
  - Fever /hypothermia
  - Dysuria
  - Change in urine color or odour
  - Poor weight gain
  - Feeding difficulties
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## CHILDREN

- Abdominal or suprapubic pain
- Voiding frequency
- Voiding urgency
- Dysuria
- New or increased incidence of enuresis
- Fever

# Diagnosis

- Routine urinalysis
- Urine culture-confirm UTI
- Voiding cystourethrogram
- Radionuclide cystography
- Ultrasound abdomen


# MANAGEMENT

- Depends on age, clinical condition of the child, presence of complication or structural anomaly
- Large amount of oral fluids
- Empty bladder frequently
- Follow up urine culture
- Maintain fluid & electrolyte balance

- Oral or parenteral Antibiotic therapy based on culture study


## Older children

- Cotrimoxzole 6-8mg/kg/d -bid
- Amoxycillin 30-50mg/kg/d-bd/td
- Ciprofloxacin 10-15mg/kg/d-bd
- Ampicillin 100mg/kg/d-tid
- Gentamycin 5-7.5mg/kg/d- bid
- Amikacin 15 mg/kg/d- bid- bid
- Cefatotaxime 100mg/kg/d-bd/td
- Ceftrioxine 75mg/kg/d-once

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- Early infancy(4-6month)
  - Combination of ampicillin & aminoglycoside is given for 10-14 days

# NURSING MANAGEMENT

- Clinical evaluation-blood studies/culture/LP,
- IVF Therapy
- Comfort
- Maintain hydration
- Prepare for diagnostic procedure
- Monitor for response to treatment
- Monitor weight, IO& urine specific gravity
- Monitor renal function tests/urine culture& BP

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- Health education
  - Give prescribed medication for full number of days. Follow up urine culture
  - Teach young girls to wipe from front to back after going to the bathroom
  - Circumcision -boy babies
  - Plenty of oral fluids
  - Avoid tight clothing /diaper.
  - Advice to use cotton underwear
  - sexual practice/encourage to urinate immediately after having sexual intercourse-  
to sexually active adolescent girls

