**Epidemiology**

* In the United States, urinary tract infections are the most prevalent outpatient infections.
  + 50-60% of adult women will suffer from at least one UTI in their life.
  + Within six months, 27% of women will experience a recurrence.

**Risk Factors**

* Pregnancy, sexual activity, age, previous UTI, poor hygiene, prostatic hypertrophy, bowel incontinence, post-menopausal state, diabetes.

**Classification**

* Uncomplicated: Infections that occur in premenopausal women with structurally and functionally normal urinary tracts who are healthy.
  + Most common pathogen: **E. coli**
* Complicated: Infections are associated with abnormalities of the anatomical or functional urinary tract and/or underlying medical conditions.
  + Kidney/bladder stone, indwelling catheter, obstruction, pregnancy, males, diabetes, immunosuppression.
  + Men who have UTIs are considered complicated.
  + E. coli accounts for 50% of all cases
* Significant bacteriuria: Bacterial counts ≥105 CFU bacteria/mL.
* Asymptomatic bacteriuria: Absence of urinary tract infection (UTI) symptoms when bacteria are present in the urine.
  + Only pregnant patients and patients undergoing urologic procedures should be treated for asymptomatic bacteriuria.
* Recurrent Infections: Two or more UTIs within six months or three or more UTIs within one year.

**Diagnosis**

**Clinical Presentation**

|  |  |
| --- | --- |
| Lower UTI   * Dysuria (pain or burning on urination) * Frequency (frequent voiding of small amounts of urine) * Urgency (need to void immediately) * Hematuria (blood in urine) | Upper UTI   * Flank pain * Fever * N/V * Costovertebral tenderness |

* Symptomatic
* Positive UA
* Isolation of significant numbers of bacteria from urine specimen

**Treatment**

|  |  |
| --- | --- |
| Oral  Sulfamethoxazole-Trimethoprim  Nitrofurantoin  Fosfomycin  Levofloxacin  Ciprofloxacin  Amoxicillin-clavulanate  Cephalexin | IV  Ampicillin-sulbactam  Piperacillin-tazobactam  Ceftriaxone  Cefepime  Meropenem  Levofloxacin  Ciprofloxacin |

Uncomplicated Cystitis

1. Sulfamethoxazole-trimethoprim 160/800mg PO BID x 3 days
2. Nitrofurantoin 100 mg PO BID x 5 days
3. Fosfomycin PO in 3 to 4 oz. of water x 1; str and dissolve

Complicated Cystitis – Female

1. Ciprofloxacin IR 250 mg PO q12h
2. Levofloxacin 750 mg PO/IV daily x 5-7 days
3. Ceftriaxone 1 g IV once, followed by appropriate PO therapy x 5-14 days
4. During pregnancy: amoxicillin-clavulanate IR 875 mg BID x 10-14 days

Complicated Cystitis – Male

1. Sulfamethoxazole- Trimethoprim 1 double-strength tablet PO BID x 14 days
2. Levofloxacin 750 mg PO/IV daily x 5-7 days
3. Ciprofloxacin 500 mg PO q12h x 5-7 days or 400 mg IV q12h x 5-7 days

* Repeat cultures at 4 to 6 weeks
* Recurrent infection: treat up to 6 weeks

Complicated Cystitis - Catheter-associated

* Asymptomatic patients: no antibiotic therapy needed. Change catheter and access need for catheter.
* Symptomatic patients: change catheter and treat as a complicated UTI empirically

Uncomplicated - Pyelonephritis

1. Levofloxacin 750 mg PO daily x 7-10 days
2. Sulfamethoxazole-Trimethoprim 1 DS tablet PO daily x 14 days

Complicated - Pyelonephritis

1. Ceftriaxone 1 g IV daily x 14 day

* Once the patient has been afebrile for 24 to 48 hours, may switch from IV to oral therapy to complete the 14-day treatment.

References

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