DST-601 Lower Urinary Tract Infection (UTI): Adult

DEFINITION

- A lower urinary tract infection (UTI) is a bacterial infection of the bladder, also known as cystitis, caused by bacteria multiplying in the urine
- Uncomplicated UTIs are acute infections of the bladder in otherwise healthy women
    - UTIs are considered complicated in the following circumstances:
        - All UTIs in men are considered complicated
        - Anatomic or functional abnormalities of the genitourinary (GU) system, such as obstruction, neurogenic bladder, stones, prostatic hypertrophy, vesicoureteral reflux
        - Long term catheterization or recent GU instrumentation
        - Treatment for a UTI within the previous month
        - Renal failure, poorly controlled diabetes or patients who are immunocompromised

POTENTIAL CAUSES

- Escherichia coli is the most common organism, found in 80-90% of cases
- Staphylococcus saprophyticus
- Other enterobacteria

PREDISPOSING RISK FACTORS

- Female gender
- Sexual activity
- Previous UTIs
- Pregnancy
- Use of spermicides, diaphragm
- Infrequent voiding
- Dehydration
- Urinary instrumentation (catheterization)
- Renal calculi
- Immunocompromised (human immunodeficiency virus infection)
- Diabetes mellitus
- GU tract anomalies (congenital, urethral stricture, neurogenic bladder, tumour)
- Male specific factors are anal intercourse, intercourse with a female with a UTI, lack of circumcision, and prostatic hypertrophy.

TYPICAL FINDINGS

- Urinary frequency
- Urinary urgency
- Dysuria
- Mild dehydration
- Afebrile
- Suprapubic discomfort
- Bladder spasm
- Foul smelling urine
- Hematuria

PHYSICAL ASSESSMENT

Vital Signs

- Temperature
- Pulse
- Respiratory rate
- SpO_2
- Blood pressure

General Assessment

- Hydration status
- Suprapubic tenderness may be mild to moderate
- If flank pain presents refer or consult with physician or nurse practitioner as suggests ascending infection
- If costovertebral angle (CVA) tenderness presents on percussion refer or consult with physician or nurse practitioner as suggests ascending infection

Note: In the elderly, symptoms do not always follow the classic triad of urgency, frequency and dysuria. Look for subtle cognitive changes and predisposing factors.

- **Sexually Active Female**
  - If appropriate, perform a pelvic exam and full STI screening if abnormal vaginal discharge or symptoms suggestive of vaginitis or STI are present
  - If appropriate, offer STI screening (see diagnostic tests section below)

- **Sexually Active Male**
  - Assess for urethral symptoms, discharge or genital lesions.
  - If present, offer full STI screening (see diagnostic tests section below).

Note: The RN(C) must be certified in STI management in order to carry out activities in the NNPBC STI DSTs. If STI testing is warranted and the RN(C) is not STI certified, refer to physician or nurse practitioner. If appropriate, offer STI screening (see diagnostic tests section below).

DIAGNOSTIC TESTS

- Urinalysis
- Dipstick test: blood, protein, nitrites, leukocytes
- Consider microscopic urinalysis: white blood cells, red blood cells, bacteria
- Consider labs for renal function: creatinine, BUN, glomerular filtration rate
- Urine culture and sensitivity is generally not required for an uncomplicated UTI
- Collect a urine sample for culture and sensitivity prior to starting antibiotics if:
  - This is a complicated UTI
  - This is the second presentation of a UTI within a one-year time frame
  - Patient presents with treatment failure (persistent UTI symptoms up to 10 days post-treatment)
  - Patient presents with fever, chills, rigor, or flank pain (refer or consult physician or nurse practitioner)
  - Dipstick urine test is negative, but symptoms are indicative of an UTI
- For complicated UTIs, ensure urine culture and sensitivity is tested 1-2 weeks after antibiotics are completed
- If symptoms or history indicate, offer full STI screening as per the appropriate STI DST, if STI certified
- If full STI screening declined, obtain a urine specimen for CT/GC NAAT

- If STI signs or symptoms are also present ensure follow-up as there may be more than one condition present (e.g. UTI and STI)
- Consider urine pregnancy test if indicated

Note: If urinary frequency, urgency or dysuria and dipstick is positive for leukocytes and/or nitrites, may treat as lower UTI

MANAGEMENT AND INTERVENTIONS

Goals of Treatment

- Eradicate infection
- Relieve symptoms
- Prevent complications

NON-PHARMACOLOGICAL INTERVENTIONS

- Rest
- Hydrate with 8-10 glasses of fluid per day

PHARMACOLOGIC INTERVENTIONS

Antibiotics: Adult Female, Acute Uncomplicated UTI

Primary Regimen

- Nitrofurantoin 100 mg po four times a day for 5 days OR Macrobid 100 mg po bid for 5 days

  OR

- Trimethoprim 160 mg/sulfamethoxazole 800 mg, 1 tab PO BID for 3 days

Alternative Regimen

If Allergic or Resistance Risk to Above Medications

- Amoxicillin/clavulanate 875/125 mg, 1 tab PO BID for 5-7 days

If Allergic to Amoxicillin/clavulanate

- Ciprofloxacin 250mg PO BID for 3 days

Antibiotics: Adult Male, UTI (Acute Cystitis)

Note: All UTIs in men are considered complicated.

Primary Regimen

- Trimethoprim 160 mg/sulfamethoxazole 800 mg, 1 tab PO BID for 7 days

  OR

- Ciprofloxacin 500 mg PO BID for 7 days

Alternate Regimen

- Amoxicillin/clavulanate 875/125 mg, 1 tab PO BID for 7 days

  OR

- Cephalexin 500 mg PO QID for 7 days

Antibiotics: Complicated UTI (e.g. Obstruction, Reflux, Azotemia) or Urinary Catheter-Related Infection

- If low risk of multi-drug resistant infection:
  - Ciprofloxacin 500 mg PO BID for 7-14 days
- For high risk of multi-drug resistant infection consult physician or nurse practitioner

Note: Treatment for pyelonephritis is not included in this document as it is an upper UTI.

Note: Ensure sensitivity of organism to the chosen antibiotic once culture and sensitivity result are returned.

If resistant, consult with or refer to a physician or nurse practitioner.

Pregnant and Breastfeeding Person

Pregnant Person

- **DO NOT USE:** Nitrofurantoin is contraindicated in pregnant patients in third trimester including at term (38 to 42 weeks' gestation), during labor and delivery, or when the onset of labor is imminent. Alternative antibiotics should be used in pregnant patients with G-6-PD deficiency
- Use of nitrofurantoin earlier in pregnancy should **ONLY** be used after consultation with physician or nurse practitioner
- Amoxicillin/clavulanate should **ONLY** be used during pregnancy after consultation with physician or nurse practitioner
- **DO NOT USE** trimethoprim/sulfamethoxazole or ciprofloxacin

Breastfeeding Person

- Nitrofurantoin, amoxicillin/clavulanate should only be used during breast feeding after consultation with physician or nurse practitioner
- **DO NOT USE** trimethoprim/sulfamethoxazole or ciprofloxacin

POTENTIAL COMPLICATIONS

- Pyelonephritis
- Chronic cystitis

PATIENT EDUCATION AND DISCHARGE INFORMATION

- Advise on condition, treatment and expected course of disease process
- Counsel to return to clinic if fever develops or symptoms do not improve in 48-72 hours
- Counsel on appropriate use of medications (dose, frequency, side effects, need to complete entire course of medications)
- Recommend increasing fluid intake to 8-10 glasses per day
- Counsel on sitting in a warm tub to relieve symptoms of dysuria
- For women, advise regarding wiping front to back after a bowel movement
- Counsel on not using douches
- Counsel on avoidance of bubble baths
- Advise that voiding after intercourse may be beneficial
- Advise as to alternative contraception to avoid spermicide use
- Use appropriate cleaning for sex toys and advise against sharing sex toys

MONITORING AND FOLLOW-UP

- If symptoms do not begin to resolve in 48-72 hours, or if symptoms progress despite treatment, patient should return to the clinic for reassessment
- Pregnant women who present with symptoms of UTI are recommended to have urine for urinalysis and culture and sensitivity as indicated
- All pregnant women treated for UTIs are recommended to have a urinalysis and urine for culture and sensitivity 1-2 weeks following treatment and then as indicated

CONSULTATION AND/OR REFERRAL

- Presence of complicating factors suggestive of upper UTI (fever [>38° C] chills, flank pain, CVA tenderness, nausea and vomiting)
- Women presenting with a second UTI within one month (or a third UTI within two months) or more than three in one year should be referred to a physician or nurse practitioner
- Women presenting with complicated UTIs require urine for culture and sensitivity and consultation with and/or referral to a physician or nurse practitioner
- Men who present with an uncertain cause or more than one UTI should be referred to a physician or nurse • practitioner for further evaluation.
- Men greater than or equal to 50 years of age who present with a true (culture-positive) urinary tract infection for the first time should be referred to a physician or nurse practitioner for further evaluation.

DOCUMENTATION

- As per agency policy

REFERENCES

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.

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