This decision support tool is based on best practice as of September 2009. For more information or to provide feedback on this or any other decision support tools, e-mail certifiedpractice@crnbc.ca

**ADULT URINARY TRACT INFECTION - CYSTITIS**

**DEFINITION**
Bacterial infection of the bladder.

**POTENTIAL CAUSES**
- *E. coli* is the most common organism in 80-90% of cases
- Other causes are klebsiella, pseudomonas, group B streptococcus and proteus mirabilis, chlamydia trachomatis, candida, tuberculosis

**PREDISPOSING RISK FACTORS**
- Female gender
- Poor perineal hygiene
- Diabetes mellitus
- Urinary instrumentation (e.g., catheter)
- Neurogenic bladder (stroke or multiple sclerosis)
- Congenital abnormality of GU tract
- Renal calculi
- Tumor
- Urethral stricture
- Pregnancy
- Increased sexual activity (in women)
- Sexual practices
- Use of spermicides, diaphragm
- Prostatic hypertrophy
- Immuno-compromise (e.g., HIV infection)
- Foreign body
- Trauma
- Age

**TYPICAL FINDINGS OF CYSTITIS**

**History**
- Dysuria
- Frequent urination, small amounts
- Urgency
- Suprapubic discomfort
- Hematuria
- Foul smelling urine
- Previous urinary tract infections
- Diaphragm use
- Allergies
- Medications currently used (prescription and over the counter)
- Herbal preparations
Note:
- In women, note presence of vaginal discharge, menstrual flow and use of a diaphragm.
- In men, note presence of urethral discharge or symptoms suggestive of benign prostatic hyperplasia.
- In the elderly, symptoms do not always follow the classic triad of urgency, frequency and dysuria. Look for subtle cognitive changes and predisposing factors.

Physical Assessment – Female
- Temperature may be elevated
- Hydration status (elderly)
- Mild-to-moderate suprapubic tenderness
- May have flank pain
- NO- CVA tenderness

Physical Assessment – Male (similar to female plus)
- Prostate may be enlarged
- Assess for urethral infection

Diagnostic tests
- Urinalysis
- C and S if indicated
- Dipstick test: blood, protein, nitrites
- Microscopic: WBC, RBC, bacteria
- Blood glucose: if suggestive of diabetes mellitus
- Pregnancy test: if woman of child bearing age

MANAGEMENT AND INTERVENTIONS

Goals of Treatment
- Relieve symptoms
- Prevent ascending infection
- Eradicate bacteria from the bladder

Non-pharmacological Interventions
- Check temperature twice per day (morning and evening)
- Drink plenty of water and other fluids every day (8-10 glasses)
- Cranberry juice may help prevent recurrent infections
- Empty your bladder as soon as you feel the urge
- Wipe from front to back after using the toilet
- Drink a glass of water before and after intercourse
- Try to void before, and as soon as possible after intercourse and after drinking a glass of water

Pharmacological Interventions
- Uncomplicated cystitis in women can be treated with a 3-day course of antibiotics.
- If symptoms are present for longer than one week in clients with diabetes – if short-term treatment failed previously or the woman is older than 65 years of age – a 7-day treatment should be given.
- Men should receive a 7-day course.
- Men older than 35 years with cystitis and women with complicated cystitis (obstruction of bladder outlet, spinal cord injury, long term catheterization) should be given a 7-10-day course of antibiotics.
• Analgesics for mild to moderate pain:
  - acetaminophen 325mg, 1-2 tabs PO q4-6h prn, or
  - ibuprofen 200mg, 1-2 tabs PO q4-6h prn
• Oral antibiotic therapy:
  - trimethoprim/sulfamethoxazole (TMP/SMX), 1 DS tab PO bid for 3 or 7 days, or
  - nitrofurantoin (regular formulation) 100mg, PO qid for 3 or 7 days, or
  - nitrofurantion (macrocrystal formulation) 100 mg, PO bid for 3 or 7 days, or
  - amoxicillin 500 mg, PO tid for 7 days
• Pregnancy: Consult a physician, nurse practitioner or midwife

Note: Cystitis in pregnancy should be treated with a 7-14 day course of antibiotics.

Note: Nitrofurantoin is contraindicated near term and during labour

POTENTIAL COMPLICATIONS
• Ascending infection (pyelonephritis)
• Chronic cystitis
• Check the blood glucose level if symptoms suggest diabetes mellitus

CLIENT INFORMATION AND DISCHARGE EDUCATION
• Counsel client about 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
• Instruct client in proper perineal hygiene (wiping from front to back) to prevent recurrence
• Recommend triple voiding (e.g., voiding before and immediately after intercourse, then drinking a large glass of water and voiding again within 1 hour) if client is a sexually active woman with recurrent cystitis. This process flushes out any organisms that may enter the urethra during intercourse.
• Use appropriate cleaning for sex toys
• Do not use douches
• Avoid bubble baths
• Return to clinic if fever continues or symptoms do not improve in 2 days

MONITORING AND FOLLOW-UP
• If symptoms do not begin to resolve in 72 hours or if symptoms progress despite treatment, client should return to the clinic for reassessment.
• Arrange follow-up after the completion of therapy and repeat the urinalysis in 14 days to ensure resolution of cystitis.
• Pregnant women who suffer from UTI are recommended to have urinalysis-C&S monthly.

CONSULTATION AND/OR REFERRAL
• Clients with chronic or recurrent cystitis should be referred to a physician or nurse practitioner.
• Men ≥ 50 years of age who present with a true (culture-positive) urinary tract infection for the first time should also be referred to a physician or nurse practitioner for further evaluation.
• Pregnant women must be referred to a physician, nurse practitioner or midwife.

DOCUMENTATION
• As per agency policy
REFERENCES


