For more information or to provide feedback on this or any other decision support tool, email certifiedpractice@bccnp.ca

ADULT (FEMALE) URINARY TRACT INFECTION (UTI)

DEFINITION

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,
- anatomic or functional abnormalities of the 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 clients who are immunocompromised.

Nurses with RN First Call Certified Practice designation (RN(C)s)[1] are able to treat **uncomplicated UTIs in females only.**

Potential Causes

- Escherichia coli (E. coli) is the most common organism in 80-90% of cases
- Staphylococcus saprophyticus
- Other enterobacteria

Predisposing risk factors

- Female gender
- Sexual activity
- Previous Urinary Tract Infections (UTIs)
- Pregnancy
- Use of spermicides, diaphragm
- Infrequent voiding
- Dehydration
- Urinary instrumentation (e.g., catheterization)

[1] RN(C) is an authorized title recommended by BCCNP that refers to BCCNP-certified RNs, and is used throughout this Decision Support Tool (DST).

- Renal calculi
- Immunocompromise (e.g., Human Immunodeficiency Virus (HIV) infection)
- Diabetes mellitus
- Genito-urinary (GU) tract anomalies (congenital, urethral stricture, neurogenic bladder, tumour)

Typical findings

- Frequency
- Urgency
- Dysuria
- Mild dehydration
- Afebrile
- Supra pubic discomfort
- Bladder spasm
- Foul smelling urine
- Hematuria

PHYSICAL ASSESSMENT

Vital Signs

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

General

- Hydration status
- Supra pubic tenderness – may be mild to moderate
- Flank pain - if present refer or consult as suggests ascending infection
- Costo-vertebral angle (CVA) percussion - presence of tenderness suggests ascending infection. If present, consult with or refer to a physician or nurse practitioner.

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

Perform a pelvic exam and full STI screening if abnormal vaginal discharge or symptoms suggestive of vaginitis or STI are present (Note that the RN(C) must be certified in STI management in order to carry out activities in the CRNBC STI Assessment DST. 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 (WBC), Red Blood Cells (RBC), bacteria
- Consider labs for renal function including creatinine, BUN, glomerular filtration rate (GFR)
- Urine Culture and Sensitivity (C&S) is generally not required with uncomplicated UTI – consider a urine C&S if:
  - this is the second presentation of a UTI within a one-year time-frame
  - the client presents with treatment failure (persistent UTI symptoms, up to 10 days post treatment)
  - the client presents with fever, chills, rigor, or flank pain (refer or consult)
  - dipstick test is negative and symptoms are indicative of a likely UTI
- If symptoms or history indicate, offer full STI screening as per Reproductive Health Certified Practice – STI Assessment DST. If full STI screening declined, obtain a urine specimen for CT/GC NAAT (Note that the RN(C) must be certified in STI management in order to carry out activities in the CRNBC STI Assessment DST. If STI testing is warranted and the RN(C) is not STI certified, refer to physician or nurse practitioner).
- Consider urine pregnancy test if indicated.

Note 1: If urinary frequency, urgency or dysuria and dipstick is positive for leukocytes and/or nitrites, may treat as lower UTI.

Note 2: If STI symptoms are also present ensure follow-up as there may be more than one condition present (e.g., UTI and STI).

MANAGEMENT AND INTERVENTIONS

Goals of treatment

- Relieve symptoms
- Prevent ascending infection
- Eradicate infection

Non-pharmacological interventions

- Rest, if febrile
- Keep hydrated, increase fluids

PHARMACOLOGICAL INTERVENTIONS

Antibiotics – Female (uncomplicated UTI)

First Choice

Note: Nitrofurantoin, in both formulations, has renal and geriatric cautions.
Prior to ordering Nitrofurantoin, please consult MD/NP if patient is elderly or has a history, or labs, suggestive of renal dysfunction.

- Nitrofurantoin (monohydrate/macrocrystal formulation - Macrobid) 100 mg po bid for 5 days

OR

- Nitrofurantoin (macrocrystal formulation - Macrodantin) 50-100 mg po qid for 5 days

OR

- Fosfomycin 3 g po for one dose

Second choice

- Trimethoprim 160 mg / Sulphamethoxazole 800 mg 1 tab po bid for 3 days

Third choice

- Cefixime 400 mg PO daily for 5-7 days

Antibiotics - Pregnant or Breast Feeding Women

- Nitrofurantoin (monohydrate/macrocrystal formulation - Macrobid) 100 mg po bid for 7 days **(do not use in third trimester or labour)**

OR

- Nitrofurantoin (macrocrystal formulation - Macrodantin) 50-100 mg po qid for 7 days **(do not use in third trimester or labour)**

OR

Cefixime 400 mg PO daily for 7 days

POTENTIAL COMPLICATIONS

- Ascending infection (pyelonephritis)
- Chronic cystitis

CLIENT EDUCATION AND DISCHARGE INFORMATION

- Advise on condition, timeline of treatment and expected course of disease process
- Return to clinic if fever develops or symptoms do not improve in 48-72 hours
- 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
- Sitting in a warm tub may relieve symptoms of dysuria
- Advise regarding wiping front to back after a bowel movement
- Do not use douches
- Avoid 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, client should return to the clinic for reassessment

- Pregnant women who present with symptoms of UTI are recommended to have urinalysis and C&S as indicated
- All pregnant women treated for UTIs are recommended to have a urinalysis and C&S 1-2 weeks following the treatment and then as indicated.

CONSULTATION AND/OR REFERRAL

- Presence of complicating factors suggestive of upper urinary tract infection (fever (>38° C), chills, flank pain, CVA tenderness, nausea and vomiting)
- Women presenting with a second UTI within one month or more than three in one year should be referred to a physician or nurse practitioner
- Women presenting with complicated UTIs require urine for C&S and consultation with and/or referral to a physician or nurse practitioner
- Men presenting with symptoms of a UTI require consultation with and/or referral to a physician or nurse practitioner

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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