Toward Optimized Practice

Multiple Sclerosis & Management of Urinary Tract Infection

Summary of the Clinical Practice Guideline | November 2013

SAME DAY ATTENTION IN PRIMARY CARE

ASSESS FOR UTI including:

- Typical signs and symptoms of UTI

  OR

- New/worsening neurological symptoms

  PLUS 1 or more of the following:

  - history of UTIs or bladder dysfunction
  - catheterization
  - fever, chills
  - new severe fatigue or confusion

NOTE: New/worsening neurological symptoms in isolation fall outside the scope of this guideline

URGENT MANAGEMENT

- Collect clean catch midstream urine sample. For indwelling catheters, collect from a newly inserted catheter
- Order urine for culture and susceptibility (C & S)

  Label requisition: *"MS patient symptomatic of UTI, [indicate sample method]. Work up for* **low colony count** *of uropathogens. Contact immediately if sample is unsatisfactory."*

- **Start antibiotic immediately after urine sample collected**
- Tell patient to phone back if not better within 48-72 hours or sooner if symptoms worsen

X Do not use dipstick

X Do not start antibiotics without collecting urine sample first

X Do not wait for results of urine culture to start antibiotic

MONITOR 24 TO 48 HOURS

REVIEW C & S RESULTS

- Positive growth: Adjust antibiotic, if necessary
- No growth: **STOP** antibiotic

NOTE: If microscopic urinalysis is used, stop antibiotics if results are fully negative, i.e., no nitrites, leukocytes, blood, WBC, RBC or bacteria

FOLLOW-UP 14 TO 21 DAYS

ASSESS

- Review symptoms to ensure UTI has resolved. Repeat urine culture is not required unless patient is symptomatic or pregnant
- Recurrent UTI (2 infections in 6 months or ≥ 3 in 12 months)
- Overall bladder function:
  - overactive bladder
  - incontinence
  - impaired emptying
  - difficulty with catheters

CONSIDER REFERRAL to specialist if issues with above

DISCUSS

- Prevention strategies
- *MS: My Bladder Management Action Plan*. Consider self-management plan if appropriate

Antibiotic Considerations for Management of UTIs in MS

- Empiric antibiotic therapy is based on availability, allergies, tolerance and likelihood of resistance.
- Resistance levels should be assessed within the context of the local practice setting.
- Level of resistance to a specific agent to be empirically used in a practice setting should be ≤ 20% for lower UTI and ≤ 10% for upper UTI.
- In patients with recent (previous three months) antibiotic exposure, consider a different antibiotic than previously used due to increased risk of resistance. Local or regional antibiograms or *Bugs & Drugs* may be consulted.
- Trimethoprim (TMP) use should be limited to those allergic to sulpha since the resistance rate to TMP is generally higher than TMP-SMX. TMP-SMX susceptibility is variable from setting to setting.
- Quinolones (ciprofloxacin, levofloxacin, norfloxacin): Greater flora alteration, increased rates of C difficile, and/or resistance development. Risk of disabling and persistent serious adverse events has been recently highlighted by Health Canada.[20]
- Complicated UTI: structural or functional abnormality of the genitourinary tract, e.g., catheterization, neurogenic bladder, renal failure.

Uncomplicated Symptomatic Lower Tract UTI		**Dose**	**Duration**	**Notes**
1st line	Nitrofurantoin	50-100 mg po qid	5 days	*Fosfomycin: Reserve for high risk populations with more resistant organisms and/or failed treatments †Risk of disabling and persistent serious adverse reactions with fluoroquinolones. Rare cases of disabling and persistent serious adverse reactions including tendinopathy, peripheral neuropathy, and central nervous system disorders have been reported to Health Canada for fluoroquinolones when used systemically (i.e. taken by mouth or by injection).[20] Avoid fluoroquinolones in patients who have previously experienced serious adverse reactions associated with them. Stop fluoroquinolone treatment if a patient reports any serious adverse reaction. Patients should be switched to an alternative treatment with a non-fluoroquinolone antibacterial drug, if needed, to complete the treatment course. ** TMP should be used with caution since susceptibility testing for TMP is not routinely available in Alberta and susceptibility cannot be inferred from TMP-SMX.
	Nitrofurantoin macrocrystals	100 mg po bid	5 days	
	TMP-SMX	1 DS tablet po bid	3 days	
Alternates	Amoxicillin-clavulanate	500 mg po tid *or* 875 mg po bid	3-7 days	
	Cephalexin	500 mg po qid	3-7 days	
	Fosfomycin* (See Note)	3 g po once	1 day	
	Ciprofloxacin† (See Note)	250 mg po bid or 500 mg XL po once daily	3 days	
	Levofloxacin† (See Note)	500 mg po once daily	3 days	
	Norfloxacin† (See Note)	400 mg po bid	3 days	
	Trimethoprim (TMP)** (See Note)	100 mg po bid	3 days	
Complicated Symptomatic Lower Tract UTI		**Dose**	**Duration**	**Notes**
1st line	Amoxicillin-clavulanate	500 mg po tid or 875 mg po bid	7-14 days	If delayed response, anatomic abnormality or uncertainty if upper tract involvement, treat for 14 days
	TMP-SMX	1 DS tablet po bid	7-14 days	
	Ciprofloxacin† (See Note)	500 mg po bid or 1000 mg XL po once daily	7-14 days	
	Levofloxacin† (See Note)	500 mg po once daily	7-14 days	
Alternate	Cefixime	400 mg once daily	7-14 days	**TMP should be used with caution since susceptibility testing for TMP is not routinely available in Alberta and susceptibility cannot be inferred from TMP SMX.
	Trimethoprim (TMP)** (See Note)	100-200 mg po bid	7-14 days	

Uncomplicated or Complicated Upper Tract UTI		Dose	Duration	Notes
1st line	Ciprofloxacin† (See Note)	500 mg po bid or 1000 mg XL po once daily	7 days	Use oral therapy if not ill, no significant nausea or vomiting and reasonable compliance may be expected; otherwise consider a parenteral regimen. Collection of blood culture in febrile patients is good practice. The effectiveness of oral agents is less trustworthy if previous antibiotic use and infections. **TMP should be used with caution since susceptibility testing for TMP is not routinely available in Alberta and susceptibility cannot be inferred from TMP SMX.
	Levofloxacin† (See Note)	750 mg po once daily	5 days	
	TMP-SMX	1 DS tablet po bid	14 days	
	Amoxicillin-clavulanate	500 mg po tid or 875 mg po bid	14 days	
Alternate	Cefixime	400 mg po once daily	14 days	
	Trimethoprim (TMP) ** (See Note)	100 mg po bid	14 days	
Recurrent UTIs		**Dose**	**Duration**	**Notes**
Antibiotic Prophylaxis	TMP-SMX	1 SS po daily	Continuous prophylaxis for 6 months	If related to coitus, consider single dose prophylaxis: TMP-SMX, Nitrofurantoin, TMP or Cephalexin prior to or immediately post coitus. For women unable or not willing to take continuous prophylaxis, self-initiated therapy is an option – see above for uncomplicated cystitis.
	Trimethoprim (TMP)	100 mg once daily		
	Nitrofurantoin	50 -100 mg once daily		
	Cephalexin	250 mg once daily		
	Fosfomycin	3 g po every 10 days		
	Ciprofloxacin	125 mg once daily		

Abbreviations: TMP- trimethoprim; TMP-SMX - trimethoprim-sulfamethoxazole; po – by mouth; bid – twice a day; tid – three times a day; SS – single strength; DS - double strength; XL – extended release

General Measures for Recurrent UTIs (2 infections in 6 months or ≥ 3 times/year)

- Discourage use of spermicide containing contraceptives.
- Offer vaginal estrogen to postmenopausal women with recurrent UTI. Insufficient evidence for recommending a specific form, i.e., cream, vaginal ring, tablets.
- Cranberry juice conflicting efficacy in various systematic reviews. Common regimens include 500 mg tablets po bid, 500-1000 mg powder once daily or 125-250 mL juice daily (with appropriate precautions for those with underlying diabetes).
- D-Mannose. Evidence is unclear.
- No association between recurrent UTI and pre- and post-coital patterns, frequency of voiding, delayed voiding, douching, hot tubs, bubble baths, use of pantyhose or tights or tight clothing, type of clothing, bicycle riding, and volume of fluid intake per day has been demonstrated.

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