Treatment of Acute Uncomplicated Cystitis

Acute cystitis is frequently encountered in the outpatient setting and generally considered uncomplicated when it occurs in otherwise healthy young adult non-pregnant women. Factors associated with complicated urinary tract infections (UTI) are shown in Table 1. *Escherichia coli* is the primary organism in acute uncomplicated cystitis (80-85%); however, *Staphylococcus saprophyticus, Klebsiella pneumonia, Proteus mirabilis,* and other uropathogens account for a small number of cases.

Guidelines published by the Infectious Diseases Society of America and a report from the Alliance for the Prudent Use of Antibiotics recommend trimethoprim-sulfamethoxazole (TMP-SMX) as first-line treatment for acute uncomplicated cystitis.[1,2]

KEY POINTS

- TMP-SMX (Septra, Bactrim) remains first-line in the treatment of uncomplicated cystitis for patients without risk factors for drug-resistant pathogens.[1,2,3]
    - Although TMP-SMX resistance has increased over the past several years, most *E. coli* strains isolated from uncomplicated cystitis cases remain susceptible.[4,5]
    - Due to widespread use, *E. coli* resistance is increasing for fluoroquinolones as well; routine use of these agents in uncomplicated cystitis may lead to community resistance.[6]
    - Currently, TMP-SMX is the least expensive agent for the treatment of acute cystitis (see Table 2).
- Nitrofurantoin (Macrobid, Macrodantin) may be used in patients with mild-moderate symptoms AND who have either TMP-SMX allergy or live in an area where *E. coli* resistance to TMP-SMX is known to exceed 20% in women with uncomplicated cystitis.[1]
- Fluoroquinolones are most appropriately used in patients with severe symptoms AND who have either TMP-SMX allergy or live in an area where *E. coli* resistance to TMP-SMX is known to exceed 20% in women with uncomplicated cystitis.[1]
    - Ciprofloxacin (Cipro) is the preferred quinolone due to high concentration in the urine and lowest cost.
- Although local antibiograms report *E. coli* resistance to TMP-SMX of 15-20% around the state; resistance of uropathogens from uncomplicated cases is likely much lower.[1]
    - Among Idaho Medicaid patients with uncomplicated cystitis treated initially with TMP-SMX in the last year, 9% appeared to be treatment failures (received another antibiotic or were admitted to the hospital within 14 days).

Table 1: Factors associated with complicated UTI

Upper urinary tract infection
Male
Children
Elderly
Pregnancy
Diabetes Mellitus
Immunosuppression
Indwelling catheters
Recent urinary tract instrumentation
Anatomical abnormality of the urinary tract
Risk factors for drug resistant pathogens
Antibiotic (especially TMP-SMX) use in last 3 months
Recent hospitalization
Recurrent UTI
Local *E. coli* resistance to TMP-SMX ≥ 20%

Table 2. Selected agents used in the treatment of acute uncomplicated cystitis

Generic Name	Brand Name	Typical Dose	Duration	Cost*
First-Line Agents				
Trimethoprim/Sulfamethoxazole†	Septra DS® Bactrim DS®	160/800 mg q 12 hours	3 days	$8.99
Trimethoprim†	Primsol® Proloprim®	100 mg q 12 hours	3 days	$7.99
Second-Line Agents				
Nitrofurantoin macrocrystals†	Macrodantin®	50 mg q 6 hours	7 days	$25.99
Nitrifurantoin monohydrate†	Macrobid®	100 mg q 12 hours	7 days	$26.99
Fosfomycin	Monurol®	3 grams once	1 day	$42.82
Ciprofloxacin†	Cipro®	250 mg q 12 hours	3 days	$22.73
Alternative agents				
Levofloxacin	Levaquin®	250 mg q 24 hours	3 days	$29.77
Amoxicillin/clavulanate†	Augmentin®	500 mg q 12 hours	7 days	$45.98
Cefpodoxime proxetil†	Vantin®	100 mg q 12 hours	7 days	$114.03

*Approximate cost per www.drugstore.com. Accessed September 2007.
†Generic available (cost provided)

References

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