Just the Berries

Managing lower urinary tract infections

What is the best approach?

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Lower urinary tract infections (UTIs) are among the most common infections seen in physicians' offices. Patients usually present with symptoms of urinary frequency, dysuria, nocturia, postvoiding discomfort, and often hematuria.

To review management of this problem, I searched the Bandolier website, the Cochrane Library, and *New England Journal of Medicine* review articles. Abstracts of references cited in these articles were reviewed if they were available on the World Wide Web.

The symptoms of UTI are so classic that little in the way of testing is usually needed to make a diagnosis; urinalysis showing pyuria and bacteruria confirms the diagnosis. Dipstick examination might be all that is necessary, if positive. Urine culture will show the causative organism and give sensitivities, but some suggest that culture is required only if symptoms have not cleared after 2 days of treatment.

If there are complicating factors, however, such as pregnancy, recent antibiotic use, symptoms for longer than 7 days at presentation, diabetes, immunosuppression, hospital-acquired infection, recent urinary tract instrumentation, or known anatomic abnormality of the urinary tract, culture is recommended to direct therapy. Satisfactory samples for culture can be obtained by simply advising patients to spread their labia while collecting the specimen.

Since an ounce (or gram) of prevention is worth a pound (or kg) of cure, we should consider ways of preventing UTIs. Studies have shown that daily consumption of cranberry or blueberry juice reduces the incidence of infection in older women (level 3 evidence).[1] This is because cranberries have been shown to prevent bacteria (particularly *Escherichia coli*) from adhering to uroepithelial cells lining the wall of the bladder.[2] Cranberries contain two compounds that inhibit adherence: fructose and a polymeric compound of unknown nature.[3] Although many juices contain fructose, only cranberries and blueberries contain the polymeric compound.[4] The Cochrane Collaboration looked at this issue and, after a thorough search, could find no randomized trials that assessed the effectiveness of cranberry juice in preventing UTIs. Hence, they concluded that, at present, no good evidence suggests that cranberry juice is effective in preventing UTIs.

It has also been shown that sexual intercourse increases risk of UTIs, particularly in younger women and especially in those using diaphragms and spermatocides (level 3 evidence).[5] Unfortunately, voiding after intercourse has not been shown to help reduce this risk.[5]

For postmenopausal women with atrophic vaginitis, topical estrogen has been shown to reduce risk of infection (level 2 evidence).[6]

Of the organisms that cause uncomplicated UTIs, by far the biggest culprit is *E coli*, which causes more than 80% of infections. *Staphylococcus*

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saprophyticus causes 5% to 15%, and *Klebsiella* species and *Proteus mirabilis* account for the rest.[7]

Studies have demonstrated that, for cost and effectiveness in treating uncomplicated UTIs, nothing beats trimethoprim-sulfamethoxazole (TMP/SMX 160 mg/800 mg). Actually, trimethoprim by itself works just as well and avoids the potential complication of sulfa allergy. Twice daily TMP/SMX DS for 3 days (or trimethoprim at 200 mg bid for 3 days) is usually sufficient to effect a cure (level 1 evidence).[8] Two tablets of TMP/SMX DS as a single dose is also effective, but slightly less so than the 3-day dosing (level 1 evidence).[9]

Quinolones (ciprofloxacin at 250 mg bid for 3 days or norfloxacin at 400 mg bid for 3 days) are equally effective, but much more expensive.[10] They are contraindicated for children.[9] Generally, for children and for UTIs complicated by the above-mentioned factors, a longer course of therapy, 7 to 10 days, is recommended (level 2 evidence).[11]

Amoxicillin and first-generation cephalosporins are less popular therapies these days because of the emergence of organisms resistant to these agents and, hence, higher rates of treatment failure. These antibiotics' excellent safety profiles, however, give them a primary role in treatment of pregnant women.

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