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Acute and Complicated Urinary Tract Infection in Women

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Acute and Complicated Urinary Tract Infection in Women

Bernard Fallon, MD

INTRODUCTION

Urinary tract infection (UTI) is an inflammation of the urothelium of the bladder (*cystitis*) or kidneys (*pyelonephritis*) secondary to invasion by bacteria or other organisms, which is usually characterized by bacteriuria and pyuria. UTI may occur as an isolated acute episode or as a series of recurrent infections with different bacterial isolates (a *reinfection*) or with an organism cultured from a previous infection (*bacterial persistence*). Persistent infection often is associated with anatomic or pathologic anomalies of the urinary tract or with the presence of a foreign body, such as a bladder drainage catheter. UTI may be classified as *uncomplicated* or *complicated*. Uncomplicated infections are those occurring in the absence of comorbid conditions, such as a structural abnormality of the urinary tract, urinary calculi, advanced age, or chronic disease (eg, diabetes mellitus).

UTI is a common and costly illness that can be associated with severe morbidity and death. An estimated 150 million UTIs occur each year worldwide and cost \$6 million in direct health care expenditures.¹ In the United States, UTI is not a reportable disease, so it is difficult to accurately assess its incidence. Nevertheless, in 1997 UTI accounted for 7 million office visits and 1 million emergency department visits, resulting in 100,000 hospitalizations.² The estimated annual cost of treating community-acquired UTIs in the United States is \$1.6 billion.² Catheter-associated UTI—the most common nosocomial infection in the United States—occurs at a rate of 1 to 1.5 million cases per year, affects 10% of short-term catheterized patients, and costs an estimated \$400 per episode.³ Approximately 250,000 cases of acute uncomplicated pyelonephritis occur in the United States annually.⁴ UTIs are much more likely to occur in women than in men, affecting about 25% of women before age 40 and 50% during their lifetime. Sexually active young women are common victims of this illness, and incidence and prevalence increase with age.

This manual examines the pathogenesis of bacterial UTIs in women and outlines a recommended clinical

approach to these infections. A discussion of nonbacterial UTIs as well as UTIs in men, children, and pregnant women is beyond the scope of this review.

The majority of community-acquired UTIs in women are caused by *Escherichia coli*. In a recent analysis of 4342 urine isolates from women with an outpatient diagnosis of acute cystitis, *E. coli* was the identified uropathogen in 86% of cases; *Staphylococcus saprophyticus* accounted for another 4% of cases and other Enterobacteriaceae for the remainder.⁵

In most cases, uncomplicated UTI can be easily and effectively treated with appropriate antibiotic therapy. Given the expanding array of antibiotic choices, it is important that physicians choose carefully, as improper use of these medications can contribute to the growing problem of bacterial resistance. In part to help physicians make appropriate therapeutic choices, the Infectious Diseases Society of America (IDSA) recently published evidence-based guidelines for treatment of uncomplicated UTIs in women, which have been endorsed by the American Urologic Association.⁶

ACUTE UNCOMPLICATED CYSTITIS

CASE PRESENTATION

A 19-year-old woman presents to her family physician with a 24-hour history of urinary frequency and urgency, dysuria, and lower abdominal pain. The physician suspects acute bacterial cystitis, which leads her to probe for further historical details.

The patient denies any other symptoms, including vaginal drainage or irritation or upper or lower gastrointestinal problems. She has never had a serious illness or surgery, and she has no history of past infections or recent exposure to antibiotic therapy. The patient recently became sexually active for the first time, with a partner who also was never previously sexually active. She uses a diaphragm for birth control. She has had no foreign travel.

On physical examination the patient is afebrile, with normal vital signs. The remainder of the examination is