

# Elderly Are At Risk for Urinary Tract Infection

Thomas F. Stringer, M.D., F.A.C.S.

Urinary tract infection (UTI) is a common complaint in young, healthy women, and the management of such cases is straightforward. Management of complicated UTI is a far greater challenge. Many factors complicate this disease process, and each requires a special approach. Factors that complicate UTI overlap and include patient age, diabetes, likelihood of catheterization, likelihood of hospitalization (with a concomitant chance of nosocomial infection), prostatitis, involvement of the kidneys, persistent asymptomatic bacteriuria and more. The impact of each variable must be sorted out. Elderly patients are more likely to have diabetes or prostatitis, and they are more likely to be hospitalized. In these patients, UTI's are common and often recur. The likelihood of infection with resistant organisms is also greater in patients with any of these risk factors. The choice of antibiotic therapy is therefore different than in uncomplicated UTI. Addressing these factors will allow optimal management of complicated UTI and improve outcome and reduce cost.

We will address some of the more common factors that determine urinary tract infection in special and complicated patient groups including diabetic patients and the elderly. Urinary tract infections in patients with diabetes are more likely to involve the kidneys, to require longer treatment, and to be caused by resistant organisms. Diabetics account for a large percentage of patients with such serious complications of UTI as emphysematous pyelonephritis, papillary necrosis and perinephric abscess. Bacteria in the urine is 2-3 times more common in patients with diabetes than in the general population. Because of propensity for serious sequelae, any UTI in a patient with diabetes should be considered complicated.

Many possible explanations have been proposed to account for the greater prevalence of UTI in diabetics. They include altered white blood cell function, increased adherence of bacteria to the bladder lining and enhanced bacteria growth and so called "sweet urine". Impaired bladder sensation and distention of the bladder with increased residual volume and possible reflux can lead to urinary tract infection.

Treatment of diabetics with bladder infections requires pre and post treatment urine culture, 7-10 day duration of treatment with fluoroquinolones, beta-lactamase-stable penicillins or cephalosporins. The frequency of recurrence is high. For treatment of upper tract or kidney infection in the diabetic, urine culture and ultrasound of the kidneys should be standard before the start of treatment. Lack of response or development of renal failure signals a possibility of severe complications.

Bacteria in the urine is much more common among the elderly population than it is among younger adults. 50% of women over 80 have asymptomatic bacteriuria. Several factors contribute to this high incidence. They include hormonal changes which in women lead to vaginal atrophic changes, an increase in vaginal pH, and subsequent colonization with uropathic bacteria. Diseases, conditions and medications can also predispose the elderly to urinary retention and subsequently bacteriuria. These include neurologic disease (including stroke), fecal impaction, cystoceles (in women), and use of anticholinergic drugs. In men, benign prostatic hypertrophy promotes urinary retention. Fecal soiling and poor perineal hygiene may also predispose the elderly to bacteriuria.

Elderly patients requiring long-term catheters present additional problems. Approximately 30% of patients with a catheter develop bacteriuria within 5 days. 4% of patients with catheter related urinary tract infection develop bacteria in the bloodstream with potential serious sequelae. Additional problems of long-term catheterization include catheter obstruction and infection, stones, local infections (such as urethritis, periurethral abscess, epididymitis, and prostatitis), bladder fibrosis, and increased risk of bladder cancer. Symptomatic UTI, however, is clearly the major complication of catheterization. Treatment of asymptomatic UTI is of no benefit to catheterized patients and unneeded treatment certainly predisposes to development of resistant strains of bacteria. To diagnose infection, signs and symptoms should be present and in the elderly atypical signs may include lower abdominal pain, restlessness and loss of appetite.

Treatment of symptomatic catheter related UTI requires a 7 day course of treatment in women and a 14 day course of treatment in men, usually with a fluoroquinolone. The benchmark for preventing UTI in a catheterized patient is to maintain a closed system and minimize duration of catheterization. Avoiding catheterization entirely will prevent a significant number of UTI episodes. Cued voiding and absorbent pads may be options for some patients.

Urologic intervention in significantly complicated situations can be instrumental in reversing the infection process. This is especially true when the complicating factor can be removed or repaired by therapy such as stone extraction and removal of indwelling catheters. Elderly residents of nursing homes and long-term facilities frequently require specialty management of their complicated urinary tract infections.