Elderly Women at Higher Risk for Unnecessary Urinary Catheterization

Elderly women are at high risk for inappropriate urinary catheter utilization in emergency departments, according to a study in the *American Journal of Infection Control*. The study was conducted at St John Hospital and Medical Center, a 769-bed tertiary care teaching hospital in Detroit, Mich. The authors examined 532 instances in which urinary catheters were placed in emergency room patients over a 12-week study period. After reviewing whether the catheter’s placement conformed to established guidelines, the authors determined that half of the female patients 80 years or older who were subjected to urinary tract catheterization did not meet institutional guidelines. Women were 1.9 times more likely than men, and the very elderly (greater than 80 years) were 2.9 times more likely than those 50 years and younger, to have a urinary catheter inappropriately placed. “We found that it was twice as likely for women to have a non-indicated UC [urinary catheter] placement compared to men,” the authors conclude. “Our results confirm what has been reported in previous studies, and underscore the significant risk of the very elderly (80 years or older) for inappropriate UC utilization.” “Because more than half of hospital admissions come through the emergency department, it is important that the ED be seen as the focus for efforts to reduce unnecessary UC utilization,” say the authors.
Alzheimer's Research Sheds Light on Potential UTI Treatments

Research into Alzheimer's disease seems an unlikely approach to yield a better way to fight urinary tract infections (UTIs), but that's what scientists at Washington University School of Medicine in St. Louis and elsewhere recently reported. One element links the disparate areas of research: amyloids, which are fibrous, sticky protein aggregates. Some infectious bacteria use amyloids to attach to host cells and to build biofilms, which are bacterial communities bound together in a film that helps resist antibiotics and immune attacks. Amyloids also form in the nervous system in Alzheimer's disease, Parkinson's disease and many other neurodegenerative disorders. To probe amyloids' contributions to neurodegenerative diseases, scientists altered potential UTI-fighting compounds originally selected for their ability to block bacteria's ability to make amyloids and form biofilms. But when they brought the compounds back to UTI research after the neurology studies, they found the changes had also unexpectedly made them more effective UTI treatments. "Thanks to this research, we have evidence for the first time that we may be able to use a single compound to impair both the bacteria's ability to start infections and their ability to defend themselves in biofilms," says senior author Scott J. Hultgren, PhD, the Helen L. Stoever Professor of Molecular Microbiology at Washington University.

Immune System Overreaction May Enable Recurrent UTIs

The immune system may open the door to recurrent urinary tract infections (UTIs) by overdoing its response to an initial infection, researchers at Washington University School of Medicine in St. Louis have found. Researchers showed in mice that severe inflammatory responses to an initial UTI cause bladder damage and allow infection to persist longer. After one to two weeks of infection, the bladder wall undergoes additional changes that leave mice more vulnerable to later infection. Suppressing the immune system during initial infection decreases these vulnerabilities. "We found markers in the mice that may one day help us identify patients vulnerable to recurrent infection and refine our treatment strategies," says lead author Thomas J. Hannan, DVM, PhD. "There were infection-fighting elements in the immune responses of some mice that we may, for example, one day be able to trigger with vaccines for vulnerable patients." The research was conducted at the Center for Women's Infectious Disease Research at the School of Medicine. UTIs affect millions of people each year. Although antibiotics are the primary treatment, antibiotic resistance is a growing concern. The lab has shown that bacteria can cause multiple bouts of UTI symptoms by going into a dormant state in the host and reactivating months later. In the study, researchers infected mice with UTIs for a month. Some mice spontaneously resolved their infections; others developed a persistent infection that the group calls chronic bacterial cystitis. These mice persistently had high levels of bacteria in their bladder and high levels of inflammation in the urinary tract. "Chronic bacterial cystitis is an infection that is actively reproducing, has established a persistent and significant foothold in the host's bladder and has prompted a sustained response from the immune system," says Hannan, a research instructor in pathology and immunology. "Despite all this, the infection is still well-tolerated by the mice." In one experiment, mice were treated with antibiotics after four weeks of UTI to eliminate the bacteria. Researchers then exposed mice to other UTI-causing bacteria that they could distinguish from the initial infectious bacteria to see how the mice would respond to a subsequent infection. Forty percent of mice that had signs of chronic bacterial cystitis in the initial challenge developed it again. Mice who never progressed to chronic cystitis or defeated the infection on their own did not develop chronic bacterial cystitis in the second challenge. Symptoms were more severe in mice with recurrent chronic infections than in recurrent infections that were rapidly cleared. In mice more vulnerable to recurrent chronic infection, inflammatory immune cells had infiltrated bladder tissues. Inflammatory cells were still visible up to a month after infections were treated and cleared. "We repeated the experiment, shortening the initial infection time to 14 days and then to one day," Hannan says. "Two weeks of initial infection produced a similar effect, but one day of infection, which is not long enough to progress to chronic bacterial cystitis, did not." Mice that had chronic bacterial cystitis in the first round of infection but avoided it in the second had little or no bacteria in their urine during the second test. Hannan says this suggests that they may have antibodies in their urine directed against UTI-causing bacteria.

Benchmark Listserv - Are You Signed Up?

Are you signed up for MAHC's Benchmark Listserv? If not, do so today. What a great resource to network, share ideas, ask questions and communicate with your colleagues. To sign up, simply click here or go to MAHC's website www.homecaremissouri.org.