

Henry Ford Health

Henry Ford Health Scholarly Commons

Nephrology Articles

Nephrology

7-1-2006

Infectious Complications in Patients With Chronic Kidney Disease

Allan J. Collins

Jerry Yee
JYEE1@hfhs.org

Follow this and additional works at: https://scholarlycommons.henryford.com/nephrology_articles

Recommended Citation

Collins AJ, Yee J. Infectious Complications in Patients With Chronic Kidney Disease. *Advances in Chronic Kidney Disease* 2006; 13(3):197-198.

This Article is brought to you for free and open access by the Nephrology at Henry Ford Health Scholarly Commons. It has been accepted for inclusion in Nephrology Articles by an authorized administrator of Henry Ford Health Scholarly Commons.

Infectious Complications in Patients With Chronic Kidney Disease

The National Kidney Foundation's clinical practice guidelines for chronic kidney disease (CKD) include a classification system characterizing the stages of CKD. Since the development of this classification system, a shift in focus has begun. Previously, attention to CKD focused on patients in its final stage, end-stage renal disease (ESRD), as shown by the 1972 extension of the Medicare program to include individuals with ESRD. Now, however, the potential size of the population in earlier stages of CKD is becoming more recognized, as is the burden imposed by CKD and its complications. For example, for many years, clinical research centered on cardiovascular disease in dialysis patients (and, more recently, in transplant patients).

Now, it appears that this and other complications are the major causes of morbidity and mortality for CKD patients before they ever reach ESRD. Although infectious complications have been a well-recognized complication in ESRD, this major source of morbidity now appears present in earlier stages of CKD. Some investigators have indicated there may be a link between infectious events (ie, a link between the increase in inflammatory mediators that occurs with these events and subsequent cardiovascular events, including myocardial infarction and congestive heart failure). Infectious complications may occupy a far more important place in the chain of morbidity and mortality than previously appreciated, which suggests that prevention and intervention approaches should be considered more actively.

This issue of *Advances in Chronic Kidney Disease* covers many topics in the area of infectious complications in CKD patients. Included are articles discussing surveillance data on hospitalization for infection in dialysis, CKD, and non-CKD patients; rates of vaccination to prevent infections such as pneumonia; the diagnosis and management of catheter-related bacteremia; biofilm (its generation and consequences); the use of antibiotics instilled into dialysis catheters (so-called antibiotic locks); important considerations in antibiotic therapy for common infec-

tions in dialysis patients; the diagnosis and management of enteric peritonitis in peritoneal dialysis patients; and infections after kidney transplantation. The articles provide reviews and make observations on clinical practice (prevention and treatment) and public health.

Infectious complications are 3 to 5 times more common in CKD than in non-CKD patients and up to 8 times more common in dialysis patients. Interestingly, the pneumonia rate in the CKD population appears to be almost 80% of the rate in the dialysis population. From this perspective, major infections such as pneumonia, sepsis, and urinary tract infection can be seen as major sources of morbidity, which is consistent with the reduced immunological function reported for patients with kidney disease. Furthermore, as noted by Dr Foley, infectious events may not be the isolated phenomena they were once thought to be. After a major infectious episode, cardiovascular disease event rates are markedly increased, suggesting that infection may play a synergistic role in the inflammatory hypothesis of vascular disease, which is prominent in CKD patients. Efforts to prevent major infectious complications are inadequate. Influenza vaccinations have reached only 58% of patients; the target is 90%. The rate for pneumococcal pneumonia vaccination is comparably low. The rate for hepatitis vaccination has not reached its target either and remains a major source of concern. Sepsis and urinary tract infection in the CKD, ESRD, and transplant populations need attention. Hepatitis C is not addressed, but it too must be remembered; in many areas of the world, it is a major complication in ESRD patients.

Many sepsis complications result from the use of dialysis catheters. This is a major problem in the United States. The 3 articles on biofilm, dialysis catheter complications, and antibiotic locks address different aspects of

© 2006 by the National Kidney Foundation, Inc.
1548-5595/06/1303-0002\$32.00/0
doi:10.1053/j.ackd.2006.04.012

the dialysis catheter problem, each article ending with a recommendation that use of these devices be avoided, if possible. The use of antibiotics in ESRD patients and the potential development of antibiotic-resistant strains is a very important matter for discussion and is best addressed at the local level. It is critically important to monitor the antibiograms of isolates from local dialysis units because the resistance pattern observed may differ from that observed for hospital- or community-acquired infections.

Gram-negative peritonitis in patients receiving peritoneal dialysis is an important clinical problem. These infections appear to be associated with abdominal visceral microperforations or transmural migration of bacteria, leading to serious and potentially life-threatening complications. Prolonged use of antibiotic may predispose patients to secondary fungal infections that require removal of the peritoneal dialysis catheter. This article leads the reader through the diagnostic and therapeutic issues in this problem. Finally, infectious complications in the posttransplantation period are reviewed. Urinary tract infections

continue to be a formidable challenge in adults and even more so in children; viral infections and other emerging infections are touched on as well. Prophylaxis of urinary tract infection may need to be reconsidered, given the high rates of infection in the first 3 years after transplantation. Issues in transplantation-related infection also should be viewed in light of the multiplier potential represented by infection; after transplant failure, the second-leading cause of a lost kidney is death from cardiovascular disease. Prevention measures still lag behind in transplantation patients. This is especially true regarding the rates of influenza and pneumococcal pneumonia vaccination. Such clinical care should be routine in the long-term follow-up of these patients. In short, infectious complications need more attention, including preventive measures in addition to early diagnosis and treatment.

Allan J. Collins, MD, FACP
Jerry Yee, MD, FASN
Guest Editors