Infectious Diseases

Pertussis Outbreaks Underline Need for Vaccination

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MIAMI BEACH — Diagnosis of a new-born urinary tract infection is challenging, but identification is crucial to prevent potentially serious complications, according to a review of recent literature.

Although urinary tract infections (UTIs) are common in newborns—with an estimated 4 million cases in the United States—clinical questions remain. What is the true incidence of complications if left untreated, which are the more serious or long-term consequences, and what is the best approach to treatment?

The remain a classic type of bad problem. We need to keep abreast of them. If you see a febrile infant, you should always think UTI,” Thomas E. Wiswell, M.D., said at a pediatric update sponsored by Miami Children’s Hospital.

He estimated that up to 10% of the 4 million newborns, or 300,000-400,000, have a febrile UTI at some time during the first 2 years of life.

“Unfortunately, as we deal with this in infants, the signs can be misleading or general and we may not think of this diagnosis,” he said. “We need to be more aware of kidney injury, and follow them for that.”

Dr. Wiswell advised. Almost all infants with a UTI in the first year of life have pyelonephritis. These patients are at greatest risk for renal scarring and permanent injury. An estimated 35%—64% of newborns with a UTI experience renal scarring. There is a significant correlation between the severity of scarring and higher nighttime systolic and diastolic blood pressures in children (J Pediatr. 2003;142:117-22).

This hypertension occurs in about 1% of children with a UTI and may persist into adulthood. “We may think we’ve treated the UTI completely, but as adults the intern is treating something that stems from a UTI when [the patient was] young,” said Dr. Wiswell, attending neonatologist at Florida Hospital Center for Neonatal Care, Orlando.

Effects of minor renal scarring are less well known, but advances in technetium-99m dimercaptosuccinic acid (DMSA) imaging may help. Dr. Wiswell said. “We pick up a lot more [minor] scarring with our modern day DMSA scanning versus traditional intravenous pyelogram imaging techniques but we’ve only done DMSAs for about a decade, and we need long-term follow-up to see if these smaller scars worsen over time.”

Some UTIs are benign, but more severe, complication is end-stage renal disease, which occurs in 0.2% of newborns with a UTI. These newborns are also at higher risk for systemic bacteraemia and vesicoureteral reflux. Form example, in a study of 71 newborn infants treated for UTI, 15% had vesicoureteral reflux (Pediatr. Infect. Dis. J. 2004;23:215-5).

Several recent studies address the importance of taking a urine culture at the appropriate time. For example, in a study of 538 premature infants born with sepsis, none of the 349 urine cultures taken in the first 24 hours after birth were positive (Pediatr. Infect. Dis. J. 2003;22:805-8). The babies were an average of 28.5 weeks gestation and had an average birth weight of 1,072 g. However, cultures in 189 symptomatic infants 6 days or older showed 25% had a UTI, and of these, 38% had concomitant bacteriuria.

“Some is little benefit of doing a urine culture on the first day of life with a baby with sepsis,” Dr. Wiswell said. “It is of extreme importance, however, a few days later.”

The mean time for fever resolution was 4-8 hours after start of treatment in an investigation of 128 infants 60 days old or younger with febrile UTI (Pediatr. Emerg. Care 2004;20:85-8). All had repeat cultures at 48 hours, and none were positive. Other researchers assessed the clinical course of 164 children admitted to the hospital for a UTI (Arch. Pediatr. Adolesc. Med. 2003;157:1237-40). Almost one-third, 32%, had a fever that persisted more than 48 hours, and 90% were afebrile by 80 hours. None of the 291 follow-up cultures were positive.

From these two studies, it seems follow-ups are of no utility," Dr. Wiswell commented.

Breast-feeding may have a transient but significant protective effect against UTIs, according to another study (Acta Paediatr. 2004;93:164-8). The prospective case control study compared 200 children with their first febrile UTI to 336 controls. Dr. Wiswell said. “They concluded breast-feeding significantly lowered risk of UTI, with strongest effect in the first months after birth. The protection was no longer present after 7 months of age.”

There is still uncertainty about whether long-term, low-dose antibiotics prevent recurrent UTIs in susceptible children (Cochrane Database Syst. Rev. 2001;4:CD001534). There is no consensus in the literature about traditional long-course antibiotics versus short-course therapy in upper UTIs. For eradication of lower UTIs, however, the Cochrane Collaboration Systematic Review indicates a 2- to 4-day course of oral antibiotics is as effective as 7- to 14-day therapy (Cochrane Database Syst. Rev 2007;2:CD004966).

Until larger and more rigorous trials are completed, questions will remain about UTIs in newborns. Dr. Wiswell said. ■