Critical Period Exists to Suppress *P. aeruginosa*

BY DOUG BRUNK
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Children with cystic fibrosis can acquire nonmucoid *Pseudomonas aeruginosa* and mucoid *P. aeruginosa* very early in life, and the prevalence of the mucoid form increases significantly as children age, according to results from a long-term study.

"Early prevention and detection of nonmucoid *P. aeruginosa* and mucoid *P. aeruginosa* is critical because of early acquisition and prevalence," said Zhanhai Li, Ph.D., of the University of Wisconsin, Madison, and associates. "There is a window of opportunity for suppression and possible eradication of initial nonmucoid *P. aeruginosa*."

For the study, which is called the first of its kind, the investigators prospectively evaluated 56 cystic fibrosis (CF) patients at two CF centers between April 15, 1985, and April 15, 2004 (JAMA 2005;293:581-8). Diagnoses were made through the Wisconsin CF Neonatal Screening Project. The children who participated in the study were seen every 6 weeks for the first year of life, then every 3 months for up to 16 years.

Of the 56 patients, 16 (29%) acquired nonmucoid *P. aeruginosa* in the first 6 months of life.

Among those who reached 16 , nearly all (92%) developed mucoid *P. aeruginosa*. It took a median of 1 year for children to develop the nonmucoid form, compared with a median of 13 years for children to develop the mucoid form.

"Initial nonmucoid *P. aeruginosa* can possibly be eradicated by aggressive anti–*P. aeruginosa* treatment, but once mucoid *P. aeruginosa* is established, eradication seems impossible, and a life-threatening situation develops," they said.

The investigators observed that relatively low antibody titers point to nonmucoid *P. aeruginosa* and high titers to the mucoid form.

"We also demonstrated that dramatic cough score and chest radiograph changes were associated with progressive lung infections that led to impaired pulmonary function," Dr. Li and associates said. "Therefore, cough scores and chest radiographs may also signal nonmucoid *P. aeruginosa* and, especially, *P. aeruginosa* stages and potentially guide therapeutic decisions."

The investigators said that the small sample of patients is a limitation of the study and that larger studies will be needed to confirm the findings.

The National Institutes of Health and the Cystic Fibrosis Foundation supported the study. ■

Pediatric UTI Tx: Attention To Susceptibility

BAL HARBOUR, FLA.— Concentrate on *Escherichia coli* susceptibility when selecting therapy for initial and first recurrent urinary tract infections in children, Sarah Long, M.D., advised at the annual Masters of Pediatrics conference sponsored by the University of Miami.

About 95% of initial UTIs are caused by *E. coli*, as are most first recurrences, said Dr. Long, chief of the section of infectious disease at St. Christopher's Hospital for Children, Philadelphia.

Other causes of the UTIs generally result from abnormal circumstances, such as dysfunctional voiding, she noted.

Antibiotic resistance is an increasing problem in the treatment of UTIs, so keep this in mind when selecting a drug.

Only about 30% of cases are susceptible to ampicillin and amoxicillin, so these drugs are "off the list," according to Dr. Long.

Trimethoprim-sulfamethoxazole is also on its way out; only about 50%-80% of cases are susceptible to this treatment, depending on the geographical area.

"I think this is fading as a first drug [for UTIs]," she said.

First-generation cephalosporins, such as cephalexin, and second-generation cephalosporins, such as cefuroxime, remain good choices for treatment, with susceptibility ranging from 95% to 100%.

Third-generation cephalosporins should not be used first for a UTI, Dr. Long stated.

—Sharon Worcester