

Bacterial infection alone not an indicator of poor lung function in adolescents with CF

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Children with cystic fibrosis (CF) who have poor lung function early in life are more likely also to have poor lung function in adolescence, regardless of whether they are exposed to a common infection caused by the bacteria *Pseudomonas aeruginosa* in early childhood. Earlier studies had indicated infection with the bacteria early in life was strongly associated with poor lung function later on.

The study will be presented at the ATS 2011 International Conference in Denver.

"We have shown that [infection](#) with [Pseudomonas aeruginosa](#) alone does not explain differences in [lung function](#) in early childhood that persist later in life," said study author Jessica Pittman, MD, MPH, fellow in pediatric pulmonology at the University of North Carolina, Chapel Hill. "This implies that there may be other factors (including, perhaps, genetic, environmental, nutritional or inflammatory factors) acting during infancy and early childhood in [children](#) with CF that drive lung function in the school-age years and onwards.

"The results indicate that in these children, efforts to preserve lung function before age 6 are critical to maintaining good lung function into adolescence," she said.

The researchers used records contained in the Colorado [Newborn Screening](#) Database to identify 172 [CF patients](#), gathering data regarding [body mass index](#), lung function between 6 to 8 years of age and in

adolescence, and respiratory culture results before 6 years of age.

Children with low lung function at age 6 also had low lung function in adolescence, regardless of whether or not they had infection with *P. aeruginosa* in early childhood. Children with low lung function in early childhood also had a faster rate of decline in lung function from childhood to adolescence than those with better early childhood lung function.

The study also revealed that children with a higher body mass index (BMI) between the ages of 2 and 4 years had better lung function later in life than those with lower BMI. BMI is used to measure body fat; in this case, higher BMI indicated a better nutritional status.

"Our findings are in line with previous studies suggesting that CF [lung disease](#) begins in early childhood, and would suggest that further study needs to be done to identify causes of decline in lung function in infants and children with CF, in order to optimize management and improve the severity of illness and mortality," Dr. Pittman said. "This may also suggest that early intervention, whether it be preventing infections, improving nutrition or promoting clearance of excess mucus, may be beneficial in infants with CF."

Dr. Pittman noted that infection with *P. aeruginosa* in combination with other factors may be a cause of worsening lung disease in children with CF, and it may also be a marker of other factors leading to decline in lung function.

"We found that *P. aeruginosa* is not as strongly associated with early lung function (or later lung function) as some previous studies have reported," she said. "This may suggest that *P. aeruginosa* infection is a marker for other factors causing more severe lung disease, or that it is how a child responds to the infection, and not simply the infection alone, that

determines the change in lung function."

In their next study, Dr. Pittman said her team will investigate factors in infancy and early childhood that are associated with poorer lung function at 6 years of age using data from the CF Foundation Patient Registry.

"We hope these studies will identify factors that can be targeted for further research and early intervention in order to improve lung function in children with CF both at an early age and later in life," she said.

Provided by American Thoracic Society

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