

Pediatric vaccine effectively prevents pneumococcal meningitis

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A standard pediatric vaccine used to prevent several common types of life-threatening infections also effectively reduced the rates of another disease, pneumococcal meningitis, in children and adults, according to a multi-center study led by the University of Pittsburgh School of Medicine. The study, published in the Jan. 15 issue of the *New England Journal of Medicine* and based on a detailed review of pneumococcal meningitis cases, also noted an increase in strains of pneumococcal meningitis not covered by the vaccine and those resistant to antibiotics.

An often deadly disease, pneumococcal meningitis is an infection in the brain and spinal cord membranes caused by the pneumococcus - a bacterium that also causes pneumonia and other serious infections. The highest rates of pneumococcal infections occur in very young children. There are approximately 2,700 cases of pneumococcal meningitis in the U.S. every year.

After reviewing 1,379 cases of pneumococcal meningitis from 1998 through 2005, study authors found rates of the disease decreased in children and adults after the introduction of pediatric pneumococcal conjugate vaccine (PCV7) in 2000. PCV7 protects against seven of the most common pneumococcal types, which account for over 80 percent of pneumococcal disease in young children. PCV7 is not administered to adults.

According to the study, incidence rates for pneumococcal meningitis in all age groups declined 30.1 percent from 1998-1999 to 2004-2005.

After PCV7 was made available, the incidence of meningitis decreased by 64 percent in children and by 54 percent in older adults.

"When you immunize children, they are much less likely to carry pneumococcal strains covered by the vaccine in the back of the throat," explained Lee Harrison, M.D., senior author of the study and professor of medicine, University of Pittsburgh School of Medicine. "When vaccinated children don't carry these virulent strains, they don't end up transmitting them to other children, their parents and grandparents." Prior to the study, conflicting data existed on the vaccine's effect on the incidence of meningitis in adults, he said.

The authors also observed that non-PCV7 strains increased by 60.5 percent from the 1998-1999 period to 2004-2005, and the percentage of strains that were not sensitive to penicillin, which initially declined, increased from 19.4 percent in 2003 to 30.1 percent in 2005.

"PCV7 has been highly successful in preventing pneumococcal meningitis, but it remains a very serious and deadly disease," said Dr. Harrison. "Of the patients in our study, 8 percent of children and 22 percent of adults died. These findings indicate the need to continue to explore new methods of prevention with a special emphasis on strains that are not covered by PCV7 and strains that are drug resistant. Next-generation vaccines are in development and patients and physicians need to avoid unnecessary use of antibiotics."

Source: University of Pittsburgh Schools of the Health Sciences

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