PCV7 Reduces Invasive Pneumococcal Disease

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The routine use of 7-valent pneumococcal conjugate vaccine reduced the annual incidence of invasive pneumococcal disease in young children from 62.5 cases per 10,000 patient-years to 15.3 cases per 10,000 patient-years over a 5-year period.

The surveillance study included all children younger than 5 years of age in the Northern California Kaiser Permanente health care system from April 2000 (when routine immunization began) to March 2005. These children were compared with children of the same age in the same health care system from April 1996 to March 2000 (Pediatr. Infect. Dis. J. 2007;26:771-7).

Dr. Steven Black of Stanford (Calif.) University and his colleagues determined that 131 children were diagnosed with invasive pneumococcal disease (IPD) in the period following the introduction of the 7-valent pneumococcal conjugate vaccine (PCV7). A total of 412 children were diagnosed with IPD during the comparison period.

The annual incidence of IPD declined rapidly following the introduction of the vaccine. The overall incidence of IPD was 56.7 cases per 10,000 patient-years in the year before introduction of the vaccine, 27.3 per 10,000 in the first year after the vaccine's introduction, and 10.2 per 10,000 the year after that.

The decline was even more dramatic among the IPD cases caused by one of the seven vaccine serotypes included in PCV7. The overall incidence declined from 50.1 per 10,000 in the 5 years before the introduction of the vaccine to 4.9 per 10,000 in the 5 years after the vaccine's introduction.

Although there were some concerns that the introduction of the vaccine might result in substantial increases in the incidence of IPD with nonvaccine serotypes, the investigators found little evidence of this. The incidence of IPD resulting from nonvaccine serotypes was 5.3 per 10,000 in the 5 years preceding the introduction of the vaccine and 6.2 per 10,000 in the following 5 years. There was a good deal of year-to-year variability in the incidence of nonvaccine serotypes, and the investigators noted no consistent pattern.

Of the 131 cases of IPD that occurred after the vaccine's introduction, 42 involved vaccine serotypes. Of those, only six of the children had received one or more doses of PCV7, and only three were fully vaccinated.

The investigators found evidence of indirect or herd immunity in their population. For example, 50% of children aged 2-3 years and 75% of children aged 3-5 years had not yet received any vaccine during the second year of routine vaccination. Despite that, the incidence of IPD in children aged 2-5 years fell from 24.4 per 10,000 to 7.1 per 10,000 during that year.

The most common IPD diagnoses before introduction of the vaccine—bacteremia and pneumonia—were still the most common IPD diagnoses after the vaccine was in use. Bacteremia fell from 242 of 412 cases in the earlier period to 66 of 131 cases in the study period.

The study was supported by Wyeth Pharmaceuticals, which manufactures PCV7 under the brand name Prevnar. ■

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other things, recommendations for providing visual alerts for patients to alert staff of respiratory tract infections and for reminding them of cough etiquette. This is a category II recommendation, indicating it is suggested for implementation based on suggestive studies or theoretical rationale.

► More detailed guidelines on infection control and prevention in physician's office waiting rooms. In addition to standard precautions, the statement outlines category IC procedures for sterilization, disinfection, and antisepsis.

► Added emphasis on the use of vaccines available for reducing employee's risk of acquisition or transmission of certain infectious diseases, such as influenza, tetanus, pertussis, and hepatitis. This category IB and IC policy states that employees should be vaccinated annually against influenza and should show documentation of immunity to other vaccine-preventable infections.

► New emphasis on the importance of developing policies and procedures for communicating with state and local authorities for prompt reporting of communicable disease and suspected outbreaks as required by law (category IC). ■