PCV7 Reduced Penicillin-Nonsusceptible IPD

VITALS

Major Finding: Between the 2000 introduction of PCV7 and 2008, children younger than age 5 years experienced a 78% decline in penicillin-nonsusceptible IPD under the old, pre-2008 break points, and a 64% decline under the new break points.

Data Source: Analysis of 7,272 cases of serious pneumococcal infections in U.S. children younger than age 5 years in 10 ABC areas in 1998-2008.

Disclosures: Dr. Hampton reported that he had no conflicts of interest.

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FROM THE INTERNATIONAL CONFERENCE ON EMERGING INFECTIOUS DISEASES

ATLANTA — Introduction of the 7-valent pneumococcal conjugate vaccine led to a major decline in penicillin-nonsusceptible invasive pneumococcal disease among children younger than age 5 years, according to research from the Centers for Disease Control and Prevention and other public health groups.

These findings were consistent regardless of which definition of susceptibility was used, which illustrates how changing case definitions can affect measured vaccine effects, reported Dr. Lee Hampton of the CDC's Epidemic Intelligence Service.

Using the ABC (Active Bacterial Core) surveillance system, Dr. Hampton and his colleagues analyzed 7,272 cases of serious pneumococcal infections in children younger than age 5 years in 10 ABC areas throughout the United States in 1998-2008. Isolates were classified as susceptible or nonsusceptible; "nonsusceptibles" were further classified as intermediate or resistant based on both the old and new CLSI (Clinical and Laboratory Standards Institute) standards. CLSI issued new intravenous penicillin resistance break point standards in 2008.

Among cases of all types of IPD in children younger than age 5 years, 10% had intermediate susceptibility and 4% were fully resistant under the new break points. Under the old break points, 14% had intermediate susceptibility and 20% had full resistance, the researchers noted.

Between the 2000 introduction of the 7-valent pneumococcal conjugate vaccine (PCV7) and 2008, children younger than age 5 years experienced a 78% decline in penicillin-nonsusceptible IPD under the old, pre-2008 break points, and a 64% decline under the new break points.

Rates of penicillin-nonsusceptible IPD in 2008 were higher under the old break points (7.4 cases per 100,000 children) than under the new break points (4.4 cases per 100,000).

"The introduction of PCV7 was associated with dramatic reductions in penicillin-nonsusceptible invasive pneumococcal disease incidents," regardless of which break point was used, Dr. Hampton said. Abruptly switching from the old to the new penicillin break points can create the appearance of a sudden drop in penicillin nonsusceptibility, he added.

Six additional serotypes found in PCV13, but not PCV7, now account for 97% of all penicillin-nonsusceptible IPD under the new break points and 83% of penicillin-nonsusceptible IPD under the old break points, he said. If PCV13 is effective against these additional serotypes, rates of penicillin-nonsusceptible IPD should decrease.

The findings may not be generalizable outside the ABC system, Dr. Hampton said.

He emphasized the results are preliminary, but that they have significant implications for clinicians. "PCV7 has done a terrific job of reducing penicillin-resistant pneumococcal disease, no matter how you look at it. But doctors still need to avoid prescribing antibiotics when they're not needed," he said in an interview. "Clinicians should understand that more of their patients who need intravenous therapy for nonmeningitis pneumococcal disease can now be treated with penicillin. This is great, because penicillin works very well against susceptible pneumococci and promotes less antibiotic resistance than many alternatives." ■

Pages 26a—26b