Ceftriaxone Alone Can't Treat Mastoiditis

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SAN FRANCISCO — Ceftriaxone by itself is not sufficient for acute or chronic pediatric mastoiditis, according to a group of emergency physicians who compared cases treated before and after adoption of the pneumococcal conjugate vaccine.

The proportion of *Streptococcus pneumoniae* isolates that were resistant to ceftriaxone increased from 7% in the pre-PCV era to 30% afterward, Dr. Dewesh Agrawal reported in a poster at the annual meeting of the Pediatric Academic Societies.

Although *S. pneumoniae* remained the most frequent cause of acute mastoiditis, *Pseudomonas aeruginosa* was found in five of seven chronic cases in which children had ear disease for more than 3 weeks before coming to the emergency department. In addition, *P. aeruginosa* was the second most common cause of acute mastoiditis.

"That's a really bad bug, and ceftriaxone isn't good enough for that," Dr. Agrawal, of the Children's National Medical Center in Washington, said in an interview.

The study compared 68 cases seen from January 1995 through December 2000 with 54 cases seen from January 2005 through April 2005. Patients ranged in age from 30 days to 18.2 years with a median age of 5.4 years. Over half (54%) were female.

All told, 93 patients (76%) had acute mastoiditis, and 29 patients (24%) had chronic mastoiditis. In all, 75 children (61%) went on to have surgery; among these, myringotomy tubes were placed in ears (57 children) and/or mastoidectomy was performed (56 children).

The investigators were able to determine the etiologic agents causing mastoiditis in 60 children (49%). The other pathogens identified in the study were *Staphylococcus aureus*, *Staphylococcus pyogenes*, and *Haemophilus influenzae* (acute only).

Dr. Agrawal said the investigators were surprised to find that the proportion of mastoiditis cases caused by *S. pneumoniae* did not decrease in the PCV era. *S. pneumoniae* accounted for 21% (14 of 68) of the early cases and 19% (10 of 54) of the later cases. He speculated that the study may have been done "too soon" in that many of the older children in the post–PCV-era cohort turned out not to have been given the vaccine.

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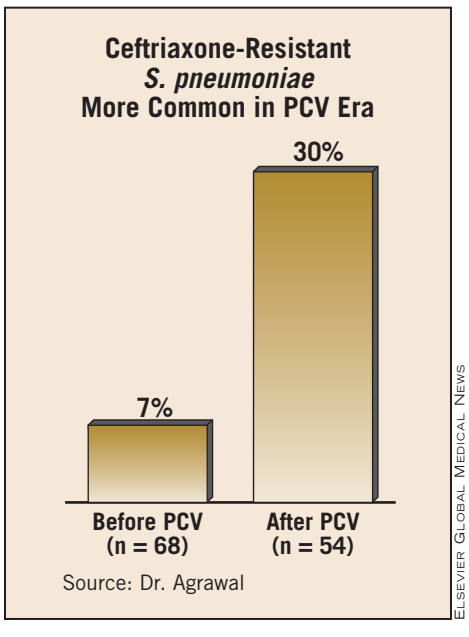
Physicians were much more likely to choose empirical parenteral combination therapy with ceftriaxone when treating acute mastoiditis: It was used in 49% of acute cases vs. 10% of chronic cases.

Empirical parenteral combination therapy with ceftriaxone was used more often in the post-PCV era as well (57% of the later cases vs. 24% in the earlier cohort). Clindamycin use, either alone or in combination, also increased from 12% of the early cases to 22% of later cases.

Even so, Dr. Agrawal and his colleagues reported that, based on the etiologic findings and antibiotic sensitivities, only 43% of the first-choice antibiotics were appropriate in the vaccine era. "In the post-PCV era, or in chronic mastoiditis, empirical antimicrobial therapy with ceftriaxone alone is not appropriate," they concluded.

"With acute ear disease, you've got to add on other antibiotics," Dr. Agrawal said. ■



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