CLINICAL CAPSULES

Erythromycin Resistance in *S. pyogenes*

Macrolide prescriptions within 1 year of throat culture were significant predictors of erythromycin-resistant *Streptococcus pyogenes* in a study of 1,225 children, reported Dr. Carlo Gagliotti of the Agenzia Sanitaria Regionale Emilia-Romagna in Bologna, Italy, and his associates.

The study included children aged 0-14 years who had at least one throat swab culture that was positive for *S. pyogenes* during 2003 (CID 2006;42:1153-6).

Overall, the average prevalence of erythromycin resistance was 25%. Among children who were given azithromycin within 1 month of culture, 2-3 months of culture, and 4-12 months of culture, the prevalence of erythromycin resistance was 67%, 44%, and 23%, respectively.

Among children who were given macrolides other than azithromycin at the same intervals, the prevalence of erythromycin resistance was 41%, 38%, and 20%, respectively. The long half-life of azithromycin may have contributed to the significant difference between azithromycin and other macrolides, the investigators noted.

By contrast, the resistance rate was only 21% among the 818 children who had not received a macrolide within 1 year of their throat swabs. Overall, the odds ratios of erythromycin resistance during the 3 months prior to throat swab cultures were 5.0 for children who were given azithromycin and 2.2 for children who were given other macrolides, compared with children who did not receive macrolides.

Multiple Vaccines Pose Minimal Risk

The measles, mumps, rubella, and varicella vaccine can be given concomitantly with other childhood vaccines, reported Dr. Henry Shinefield of the University of California, San Francisco, and his colleagues.

The researchers conducted an open, multicenter trial in which 1,779 healthy children aged 11-16 months were randomized into three groups. Group 1 received the measles, mumps, rubella, and varicella vaccine (MMRV), the combined *Haemophilus influenzae* type b conjugate–hepatitis B vaccine (HH), and the combined diphtheria-tetanus–acellular pertussis vaccine (DTaP) at the same visit. Group 2 received the MMRV at the initial visit, followed by HH and DTaP 42 days later. Group 3 received separate MMR and varicella vaccines at the initial visit, followed by HH and DTaP 42 days later.

Overall, the antibody response rates and geometric mean antibody titers to measles, mumps, rubella, and varicella were similar whether MMRV was given at the same time as the other vaccines or 42 days earlier. When MMRV was given at the same time as HH and DTaP, the antibody response rates for measles, mumps, rubella, and varicella were 97.8%, 95.4%, 98.6%, and 89.7%—higher than the previously established acceptability criteria.

Children who received all the vaccines at once were significantly more likely to report pain or tenderness at the injection site, compared with the other groups.

Dr. Shinefield has received an honorarium for preparing informational material about the MMRV vaccine ProQuad, and is a member of the Merck Advisory Committee on Varicella and ProQuad.

Molecular Diagnosis in Empyema

Molecular diagnosis improved detection of bacteria in 28% of children with pleural empyema and in 43% of those with empyema resulting from *Streptococcus pneumoniae*, reported Dr. Alban Le Monnier of the Assistance Publique-Hôpitaux de Paris, France, and his colleagues.

The molecular diagnostic techniques of broad-range 16S ribosomal DNA (rDNA) polymerase chain reaction (PCR) and pneumococcal antigen detection have been validated for urine and cerebrospinal fluid samples, but had not been validated for pleural fluid (CID 2006;42:1135-40).

Pleural fluid specimens were collected from 78 children with pleural empyema aged 15 years and younger (median age 3.9 years) in a prospective 4-year study from January 2001 to December 2004.

Overall, 60 of the 78 cases of empyema (77%) were microbiologically confirmed either by culture or by 16S rDNA PCR, and 40 (51%) were found to have pneumococcal origins. Conventional microbiologic culture identified pneumococcal strains in 23 of these 40 cases (58%). A total of 20 of these 23 cases also tested positive for *S. pneumoniae* using the 16S rDNA PCR and pneumolysin PCR techniques.

The diagnosis of *S. pneumoniae* was obtained by 16S rDNA PCR alone in 17 of the 40 cases (43%), all of whom had received antibiotics prior to pleural fluid aspiration.

No bacterial association with empyema could be found either by culture or PCR in 18 patients (23%), 16 of whom had received antibiotics prior to testing. Although the molecular tests are not a substitute for standard cultures, they can provide rapid results that allow clinicians to quickly adapt antibiotic therapy, they said.

—Heidi Splete