R2500

Abstract (publication only)

Otitis-related invasive pneumococcal disease in children: susceptibility and clonal profile of Streptococcus pneumoniae isolates

J. Picazo*, J. Ruiz-Contreras, J. Casado-Flores, A. Delgado, M. Ruiz-Gimenez, L. Aguilar, C. Mendez and the HERACLES group

Objectives: Otic foci have been described as significant source of secondary bacteremia in children. Conjugate vaccines, such as the 7-valent conjugate vaccine (PCV7), alter serotype nasopharyngeal carriage in children, potentially increasing cases of otitis media by non-vaccine serotypes. This study analyses isolates from otitis-related Invasive Pneumococcal Disease (IPD) in children. Methods: A prospective laboratory-confirmed (by culture and/or PCR) surveillance of IPDs was performed (May 07-April 10) in all hospitals with Pediatric department in Madrid (28 centres), a region (6 million inhabitants) where PCV7 was included in the vaccination calendar in 2006. Serotypes, sequence types (STs) of 19A isolates, and antibiotic susceptibility following CLSI recommendations for all isolates from otitis-related IPDs were analysed. Results: Among 499 IPDs (including 161 bacteremic pneumonia, 60 primary and 8 secondary bacteremias), 26 (5.2%) were otitis-related: 18 mastoiditis and 8 bacteremias (5 secondary to otitis, and 3 to mastoiditis). Median hospital stay was 8.0 days. All cases (but one mastoiditis) were culture-confirmed (25 isolates): 18 (72%) isolates were serotype 19A (12 from ST320, 4 from ST276, 1 from ST63 and 1 from ST1201), two were serotype 11A, and one serotype 5, 8, 10A, 19F and 24B each. Serotype 19A caused 75% (6 out of 8) otitis-related bacteremia. Intermediate/Resistance (%) in 19A isolates was: 0.0/94.4 to erythromycin, 0.0/72.2 to clindamycin, 22.2/72.2 to oral penicillin, 55.6/0.0 to parenteral penicillin, 44.4/0.0 to cefotaxime and 0.0/0.0 to levofloxacin. Intermediate/Resistance (%) in ST320 was: 8.3/91.7 to oral penicillin, 83.3/0.0 to parenteral penicillin and 66.7/0.0 to cefotaxime. All ST276 isolates were susceptible to parenteral penicillin and cefotaxime. The phenotype for macrolide resistance was inducible in all ST276 (all ermB genotype) and constitutive in all but one ST320 (ermB/mefE in all but two). Conclusions: After PCV7 inclusion, 72% otitis-related IPDs were caused by 19A. The proportions of otitis-related IPDs among total IPDs (5.2%), of otitis-related bacteremias among non-pneumonic bacteremias (8 out of 68; 11.8%), and of multiresistant ST320 among 19A (66.7%) indicate the benefit of the 13-valent PCV (including serotype 19A among others) for preventing otitis-related IPDs within prevention strategies.