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Abstract (oral session)

Pneumococcal carriage in young children one year after the introduction of the 13-valent conjugate vaccine in Italy

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Objectives: Following the introduction of the 7-valent conjugate vaccine (PCV7) in 2000, substantial epidemiological changes occurred both in pneumococcal invasive disease and carriage. In mid 2010, PCV7 was replaced by the 13-valent conjugate vaccine (PCV13), containing 6 additional capsular types. Our objective was to describe the pneumococcal carriage rate, the carriage serotypes, and antibiotic resistance in children in two Italian regions after one year PCV13 use. **Methods:** Nasopharyngeal swabs were obtained from 571 children aged <6 years during the period November 2011- April 2012. Pneumococcal strains, identified by colony morphology and optochin susceptibility, were: i) serotyped by latex agglutination and Quellung reaction; ii) subjected to antimicrobial susceptibility testing by Etest. Resistant strains were further analysed by MLST. **Results:** Among the 571 children, 75% had received at least one dose of PCV7 or PCV13. The overall pneumococcal carriage rate was 33% (188/571), with a peak (59%) among children 36-71 months attending day-care centres. Appropriate vaccination, according to age, using either PCV7 or PCV13 or a combination of the two, was found in 69% of colonized children and in 61% of non-colonized children. A total of 184 pneumococcal strains were serotyped: 33 (18%) belonged to PCV13 serotypes whereas 151 (82%) belonged to non-vaccine serotypes (NVS). Serotypes 6C, 24F and 19A were the most prevalent. The rate of penicillin resistance, using the EUCAST meningitis breakpoints, was 31% (57/184) while that of erythromycin was 42% (78/184). PCV13 serotypes and NVS accounted for 25% and 75% of the penicillin resistant strains, respectively. Notably, serotypes 6C, 24F and 19A included mainly penicillin and/or erythromycin resistant isolates. MLST analysis of the 93 resistant strains, including 21 serotypes, identified a total of 20 Clonal Complexes. **Conclusions:** This study demonstrated the low prevalence of colonizing PCV13 serotypes in young children in Italy, with the only remarkable exception of serotype 19A. Conversely, a high rate of NVS, mainly antibiotic resistant, was found, likely representing serotype replacement. New epidemiological changes are expected to occur in future thus continued surveillance is required to evaluate the PCV13 long-term impact on serotypes.