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Abstract (poster session)

Serotypes causing invasive pneumococcal disease in young adults prior to the use of new conjugate vaccines

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Objectives: The 13-valent pneumococcal conjugate vaccine (PCV13) currently used in children was also recently approved by EMA for use in adults aged ≥ 50 years old. In this study we evaluated the effect of a high uptake (75%) of PCV7 in children and estimated the potential effect of the most recently licensed conjugate vaccine PCV13 in young adults (18-64 years old). **Methods:** A total of 425 isolates were recovered from invasive disease in 2008 and 2009: 249 (58.6%) from adults aged 18-49 years and 176 (41.4%) from adults aged 50-64 years. All strains were serotyped and characterized for their antimicrobial susceptibility profiling. **Results:** Among the 425 isolates, 43 different serotypes were detected. The most frequent, accounting for 51% of all infections, were serotypes 1, 3, 7F, 14 and 19A. While in adults aged 18-49 years, serotype 1 was the most common (21%), in adults aged 50 to 64 years, serotypes 1 and 3 were equally frequent (14.2%). PCV7 serotypes accounted for 18.1% of young adults' IPD, which represents a marked decline from the pre-vaccine period (30.9%, $p < 0.05$). PCV13 serotypes were responsible for 65.6% of all infections. In adults aged 50 to 64 years, where PCV13 vaccination is approved, 68.2% of all infections could have been prevented with this vaccine. Although PCV7 serotypes were detected in only a small proportion of isolates, 60.6% of penicillin non-susceptibility (PNS) and 43.5% of erythromycin resistance (ER) were caused by these serotypes. Since PCV13 includes serotype 19A, 80.3% of PNS and 77.4% of ER were covered by this vaccine. Among the 30 serotypes not included in any conjugate vaccine, 16 presented isolates resistant to some of the antimicrobials tested. **Conclusion:** Children's high PCV7 uptake resulted in a herd effect in young adults. PCV13 will have the possibility to significantly affect pneumococci responsible for IPD in young adults and may also reduce infections caused by resistant serotypes. PCV13 use in adults may further and more rapidly reduce the infections caused by the serotypes included in this vaccine.