

O401

Abstract (oral session)

Serotypes and sequence types of antimicrobial-resistant pneumococci among paediatric carriage and non-invasive infections in a Dublin hospital

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Objectives: Pneumococcal conjugate vaccines 7 and 13 (PCV7/13) were introduced to the routine Irish immunisation schedule in 2008 and 2010, respectively. The aim of this study was to examine pneumococcal serotypes and sequence types (STs) amongst antimicrobial resistant (AMR) pneumococci isolated from paediatric carriage and non-invasive infection. **Methods:** From January 2009 to December 2011, 280 pneumococci were isolated from paediatric carriage and non-invasive infection at the routine microbiology laboratory, Children's University Hospital, Temple St, Dublin. Multiplex PCR and slide co-agglutination were used to serotype isolates. Antimicrobial susceptibilities to penicillin (MIC \geq 0.12-1mg/L included in overall analysis), tetracycline, erythromycin, clindamycin and levofloxacin were determined using the E-test method. Multi-drug resistance (MDR) was defined as pneumococci displaying resistance (penicillin intermediate excluded) to three or more antimicrobials. Multi-locus sequence typing (MLST) was performed on all AMR isolates. **Results:** In total, 73 (26%) pneumococcal isolates were resistant to at least one of the antimicrobials tested. MDR was associated with 59% (n=43) of pneumococci, of which, 95% (n=41) were PCV7/13 serotypes. Twelve serotypes, non-typable pneumococci and a variety of STs were associated with AMR. PCV7/13 serotypes 6B (n=19), 19A (n=18) and 19F (n=10) were the leading causes of AMR. However, from 2009 to 2011 the combined proportion of PCV7/13 serotypes 6B, 19F, and 23F associated with AMR fell from 73% to 19%, respectively. Serotype 35B was the most common non-vaccine type (NVT) pneumococci associated with AMR (n=6). Overall, PCV7/13 serotypes accounted for 77% (n=56) of AMR. MLST analysis revealed that clonal complex 320 and PMEN clones Sweden15A-25, Spain6B-2 and their variants accounted for 40% of AMR pneumococci. **Conclusion:** Since the percentage of PCV7/13 serotypes 6B, 19F, and 23F have declined as sources of AMR, it appears that PCV7 has impacted positively on AMR amongst pneumococci. It is likely that PCV13 will continue to enhance the positive effects of PCV7 on AMR amongst paediatric carriage and non-invasive infection.