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SUSTAINED IMPORTANCE OF STREPTOCOCCUS PNEUMONIAE AMONG PEDIATRIC COMPLICATED PNEUMONIA IN PORTUGAL (2019-22)

Oral Presentations Session
ORAL PRESENTATION SESSION 05: RESPIRATORY INFECTIONS

Joana Gomes-Silva, Catarina Silva-Costa, Marcos Pinho, Ana Friães, Mário Ramirez, José Melo-Cristino, . The Portuguese Group For The Study Of Streptococcal Infections, . The Portuguese Study Group Of Invasive Pneumococcal Disease Of The Pediatric Infectious Diseases Society
Faculdade de Medicina de Lisboa, Instituto De Microbiologia, Lisboa, Portugal

Backgrounds: To improve the etiological diagnosis of culture-negative pediatric complicated pneumonia (PCP), we expanded our real-time PCR assay to include other bacterial agents and evaluate potential changes in etiology after 7 years of near universal use of 13-valent conjugate pneumococcal vaccine (PCV13).
Methods: We collected 156 culture-negative pleural fluid and empyema samples from children (<18 years), in 62 hospitals in Portugal, from January 2019 to December 2022. Our assay included Streptococcus pneumoniae, Streptococcus pyogenes, Staphylococcus aureus, Mycoplasma pneumoniae, Haemophilus influenzae, Mycobacterium tuberculosis and Streptococcus agalactiae. For S. pneumoniae cases we performed molecular serotyping.
Results: Overall, 78 samples were negative for all bacteria tested (50.0%). Among the remaining 78 samples, the majority was positive for S. pneumoniae (n=64, 41.0%). S. pyogenes was found in 7 samples (4.49%), S. aureus in 5 samples (3.20%), H. influenzae in 2 samples (1.28%), and M. pneumoniae in 1 sample (0.64%). We did not detect M. tuberculosis nor S. agalactiae. In 2 samples, we detected the presence of DNA from both S. pneumoniae and another species: S. aureus (n=1) and H. influenzae (n=1). Among the pneumococcal samples, 44 were serotype 3 (56.4%), 5 were serotype 8 (6.41%), 2 were serotype 14 (2.56%) and serotypes 15A, 16F, 19A, 19F and 6C/6D were detected in 1 sample each (1.28% each). The remaining were negative for all serotypes tested (4.49%).
Conclusions/Learning Points: After two decades of pneumococcal conjugate vaccine use, S. pneumoniae is still responsible for most culture-negative PCPs, with PCV13 serotype 3 responsible for most cases. Expanding the molecular diagnostic panel to other species allowed the identification of the etiology of only an additional 9.62% of cases, suggesting that bacteria other than S. pneumoniae remain infrequent despite PCV13 use.