Posters Abstracts

Otopathogenic Biofilms in Australian Urban Children Undergoing Ventilation Tube Insertion

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Introduction: Biofilms are implicated in the development of several chronic infections including pathogenesis of chronic otitis media with effusion (COME) and recurrent acute otitis media (RAOM) within the middle ear. Within adenoid tissues, bacterial biofilms may act as a reservoir for reinfection of middle ear increasing the risk of COME and RAOM. Methods: Adenoid samples, middle ear effusion (MEE) and middle ear mucosa (MEM) samples (from both ears) were collected from the same children, aged 1-7 years with a history of otitis media (OM). Biofilms were examined using Live/Dead BacLight staining (Invitrogen Technologies) and species-specific fluorescent in situ hybridisation (FISH) and visualised using confocal laser scanning microscopy (CSLM).

Results: Both live and dead bacteria were identified in 17 of 45 MEE samples with bacterial microcolonies observed in 8 of 17 positive MEE samples. Specific otopathogens were observed in MEE, MEM and adenoid samples with bacteria detected in 9 of 31 MEE samples and bacterial microcolonies and biofilms identified in 4 of 9 positive MEE samples. Multiple bacteria were detected in 7 of 9 positive MEE samples with Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis detected in 6, 3, and 3 MEE samples, respectively. Bacteria were detected in 8 of 11 MEM samples. Most bacteria detected were observed in form of microcolonies and biofilms. S. pneumoniae, H. influenzae and M. catarrhalis were detected in 4, 4 and 2 of MEM samples, respectively. One adenoid sample currently analysed showed H. influenzae biofilm and singular S. pneumoniae.

Conclusion: Otopathogenic microcolonies and biofilms were detected in MEE, MEM and adenoid samples from children with COME and RAOM. Biofilms were identified frequently (75%) in the MEM samples. Analysis of adenoid samples is underway, with recruitment of control and additional OM patients in progress.