114. Prospective Trial of Passive Diversion Device to Reduce Blood Culture Contamination
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Background. Among children with acute otitis media (AOM) S. pneumoniae, H. influenzae, and M. catarrhalis are the predominant bacterial pathogens. There is a high correlation between nasopharyngeal (NP) and middle ear fluid (MEF) organisms during AOM. Thus, NP samples could serve as a surrogate for detection of otopathogens and are more easily collected in a typical practice environment than MEF. Though culture is considered the gold standard for detection, it is time-consuming, which can limit its diagnostic utility to guide clinical care. We aimed to determine the sensitivity, specificity, positive (PPV) and negative predictive value (NPV) for NP qualitative PCR for bacterial pathogens compared to NP culture.

Methods. - 63-6 months with uncomplicated AOM who were prospectively enrolled in an AOM study in Denver, CO from Jan 2019-Dec 2020 were included. All patients had an NP flocked swab (Eswab, Copan Diagnostics) at enrollment. Otopathogen culture was collected using standard techniques. Nucleic acids were extracted using the Nucleiflow® easyMAG® system (Quidel, San Diego, CA) per manufacturer's instructions. Multiplex RT-PCR for S. pneumoniae, H. influenzae, and M. catarrhalis was completed using Lyra (Quidel, San Diego, CA) and AnDiaTec assay kits (Quidel Germany GmbH, Kornwestheim, Germany). Nucleic acid amplification and detection was completed on the Applied Biosystems (ABI) 7500 Fast Dx Real-Time PCR Instrument.

Results. Of the 80 children included, 18 (22.5%) had no organism detected on culture, 31 (38.8%) had one and 31 (38.8%) had multiple organisms detected. The most commonly identified organisms on culture were M. catarrhalis (42, 52.5%), followed by S. pneumoniae (30, 37.5%), and H. influenzae (17, 21.3%). Of H. influenzae isolates 8 (47.1%) produced beta-lactamase. The sensitivity of PCR was high (>94%) for all organisms whereas the specificity was lower (50.0-77.8%) and varied by organism (Table). NPVs were high (>96%) for all otopathogens, whereas, PPV ranged from 53.3 to 68.3. PCR did not detect 3-6 times more otopathogens than culture (149 vs. 96).

Conclusions. Sensitivity, specificity, positive and negative predictive value of PCR compared to culture for otopathogens.

Disclosure. Andriess Brescia, PhD.