A multicentric surveillance of invasive pneumococcal disease (IPD) in children under five years in India

J. Singh *, A. Manoharan
Pushpagiri Institute of Medical Science and Research Centre, Tiruvalla, Kerala, India

Background: Invasive infections caused due to S. pneumoniae continue to be a major cause of morbidity and mortality among children under 5 years of age in India. The aim of ASIP surveillance was to generate nationwide epidemiological data on IPD, serotype distribution and antibiotic resistance pattern among S. pneumoniae isolated from children less than 5 years of age.

Methods & Materials: The study included 18 hospitals/institutions, 52 sentinel doctors and 10 sentinel microbiology laboratories from different territories in India with central reference laboratory located at CMC, Vellore. Children aged between 2-60 months suspected of IPD were recruited both prospectively and retrospectively and their sterile body fluids were investigated for the presence of S.pneumoniae. At the central reference laboratory, the submitted isolates were reconfirmed and serotyped using Quellung. The antimicrobial susceptibility testing and determination of MIC by E-test was performed as per established protocols.

Results: Of 361 patients identified both prospectively and through lab surveillance 132 (58%) presented with pneumonia, 78 (35%) meningitis, and 16(7%) had other clinical syndromes. Mortality was 3% overall with 8.0% among IPD cases. Although, 56 unique serotypes were found overall, 72% of all IPD were caused by 10 serotypes. Serotype 14(14.4%), 1(13.57%), 5(10.25%), 19F (9.1%), 6B (6.37%) and 19A (4.9%) were the most common with top 4 STs accounting for 47% of both pneumonia and meningitis cases. Penicillin and cefotaxime non-susceptibility was 5.3% and 1.0%. Non-susceptibility to cotrimoxazole and erythromycin resistance was highest with 35.4% and 60.5%. Overall, PCV coverage rate was high for PCV13 (74%, 95%CI (69-78%)).

Conclusion: ASIP study has provided surveillance data on IPD covering major geographical regions in India. Currently available and licensed vaccines would provide good protection coverage in Indian children against IPD.

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