

Serotyping of *Streptococcus Pneumoniae* Isolates by Multiplex PCR in Iran

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Background & Objectives: Globally *Streptococcus pneumoniae* is associated with 1 million deaths each year in children less than 5 years of age. Most children are colonized and become carriers of one or more serotypes of *S.pneumoniae* during the first year of life. Most pneumococcal infections in children are caused by a limited number of serotypes. Our aim was to develop a simple, reliable, and economical Methods for detection of epidemiologically important serotypes in children.

Methods: A total of 500 nasopharyngeal swabs were collected between December 2004 and February 2011. Identification was performed by biochemical and molecular tests. Chromosomal bacterial DNA was isolated by using a DNA extraction kit. Serotyping was done by both conventional immunological techniques and by multiplex PCR. We designed primers based on the sequences available for the capsular types 1, 3, 4, 6AB, 14, 18C, 19F, 19A, and 23F and combined them into seven multiplex PCR.

Results: From 500 nasopharyngeal swabs, 60 isolates of *S. pneumoniae* identified after identification tests. Five serotypes (3, 4, 6A, 14, 6B) of *S. pneumoniae* accounted for 81%. Other serotypes accounted only for 12%, and 7% of isolates could not be typed by multiplex PCR test, respectively. Serotype 3 was the most common serotype, followed by 6A and 14 serotypes.

Conclusion: *S. pneumoniae* is a common cause of respiratory infections requiring hospitalization in young children in Iran with antibiotic resistance increasingly common. Results show that Serotype 3 is the most common serotype among Iranian children.

Keywords: *Streptococcus pneumoniae*; PCR