O206
Oral Session
Bacterial pediatric infections

NONINVASIVE PNEUMOCOCCAL SEROTYPES IN HOSPITALIZED CHILDREN IN MOSCOW (RUSSIA)

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Objectives

Pneumococcal infections remain a major medical problem associated with high morbidity and mortality. Moreover, the resistance of Streptococcus pneumoniae to conventional antibiotics is constantly growing. Implementation of pneumococcal conjugate vaccines (PCVs) has dramatically reduced the incidence of the vaccine type-associated pneumococcal diseases in many countries. However, information on seroepidemiology of S. pneumoniae in Russia is limited.

Methods

In total, 863 noninvasive pneumococcal isolates were prospectively collected in 2009-2013 from children (median age 3.5 years) who sought medical care at five pediatric hospitals in Moscow. The isolates were recovered from nasopharynx (71.2%), middle ear fluid (14.3%), and lower respiratory tract specimens (13.6%). Serotyping was done using specific antisera from Serum Staten Institute (Denmark).

Results

The serotype was determined in 835 (96.8%) pneumococcal isolates (table 1). In total, 45 different serotypes were identified. Six major serotypes accounted for 69.5% of the distribution and included serotype 19F(21.6%), 6B(12.8%), 23F(10.1%), 14(9.1%), 6A(8.3%), and 3(7.6%).

Among the nasopharyngeal specimens, 44 different serotypes were recovered whereas only 18 different serotypes were isolated from the MEF specimens. Serotype 3 and 19A strains were more prevalent among MEF isolates. In contrast, no serotype 11A isolates were recovered from MEF. The prevalence of all remaining serotypes was similar in different specimen sources.

The overall prevalence of PCV-7 serotypes was 58.2% (table 1). Six additional serotypes included in PCV-13 increased coverage by 20% up to 78%, mainly due to serotypes 3, 6A, and 19A. In the examined collection, no serotype 5 strain was identified. In comparison to PCV-7, 10-valent PCV having three more serotypes (1, 5, and 7F) covered an additional 1.6% of the distribution. Non-PCV serotypes had a prevalence of 22%.

Conclusions

To our knowledge, this is the largest study reporting the distribution of noninvasive pneumococcal serotypes from the Russian Federation. These data may be used as a starting point to monitor and evaluate the future impact of the PCVs on the seroepidemiology of *S. pneumoniae* in the country after PCV implementation in the national immunization program.

Table 1. Distribution of serotypes in relation to PCV coverage

Vaccine	Serotype	No.	% of all typed	Cumulative %
	4	6	0.7	
	6B	107	12.8	
	9V	13	1.6	
PCV7	14	75	9.0	
	18C	20	2.4	
	19F	181	21.7	
	23F	84	10.1	**58.2**
	1	3	0.4	
Additional in PCV10	5	0	0.0	
	7F	10	1.2	**59.8**
	3	63	7.5	
Additional in PCV13	6A	70	8.4	
	19A	19	2.3	**78.0**
Non-PCV*		184	22.0	**100.0**
Overall		835	100.0	

*List of 33 non-PCV serotypes (n): 7C(1), 8(4), 9A(1), 9N(12), 10A(9), 10B(1), 11A(26), 11D(1), 12B(1), 12F(2), 13(2), 15A(3), 15B(29), 15C(13), 16F(5), 17F(6), 18A(1), 20(1), 21(1), 22F(3), 23A(17); 23B(3), 28A(2), 28F(1), 33F 3), 34(6), 35B(2), 35C(5), 35F(7), 37(11), 38(1), 39(2), 42(2).