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National Surveillance on Serotypes and Antimicrobial Resistance in *S. pneumoniae* causing IPD among Adults in Argentina, 2013-2016.

D. Napoli¹, P. Gagetti¹, C. Sorhouet¹, S. Fossati¹, M. Moscoloni¹, O. Veliz¹, Argentina Spn Working Group², R. Mabel¹, A. Corso¹.

¹INEI-ANLIS Dr. Carlos G. Malbrán, Bacteriology, Buenos Aires City, Argentina. ²Surveillance Network, Bacteriology, Argentina, Argentina.

Background and Aims:

S. pneumoniae (SPN) is a major cause of severe invasive disease being associated with mortality and morbidity worldwide. The Laboratory National Surveillance Program for adults was initiated in Argentina in 2013. Aim: to study the serotype distribution and antibiotic resistance in SPN causing IPD in >18 y.o. during 2013-2016.

Methods:

641 SPN from sterile fluids were collected from 56 hospitals (16 provinces and Buenos Aires City). Strains received at the National Reference Laboratory were serotyped by Quellung and MICs were performed by agar dilution method (CLSI).

Results:

The 43.8% of the isolates belong to >65 y.o. and 57.7% were male. Diagnosis: pneumonia (70,5%), meningitis (11,9%), sepsis (11,5%), others (6,1%). The 11 most prevalent serotypes were 3 (8.9%), 1 (8.4%), 8 (8.4%), 12F (8.3%), 7F (8%), 24F/A/B (4.4%), 19A (4.1%), 22F (3.6%), 11A (3.1%), 9V (2.7%), 14 (2.5%) and others (37.7%). Serotype distribution was similar among groups of 18-64 y.o and >65 y.o, except for serotypes 1 and 23A (p<0.05). No significant differences among serotypes were detected throughout the study period. PCV13/PPSV23 serotypes represented 44.8%/74.4% (without differences among 18-64 y.o and ≥65 y.o).

Overall, 19.9% of isolates were penicillin non-susceptible according meningitis breakpoint (MIC ≥ 0.12 mg/L), 17.2% MIC=0.12-1 mg/L and 2.7% MIC≥2 mg/L; only 0.3% of them were non-susceptible by non-meningitis breakpoint (MIC≥4 mg/L). Most penicillin non-susceptible isolates were serotypes 19A (16.7%), 24 F,A,B (16.7%), 14 and 16F (8.7%). Non-susceptibility rates were: 2.2%/0.3% for meningitis/non-meningitis cefotaxime break-points, 0.2% amoxicillin, 2.4% meropenem, 11.8% erythromycin, 16.5% tetracycline and 29% trimethoprim-sulfamethoxazole. All strains were susceptible to rifampin, levofloxacin, chloramphenicol, vancomycin and ceftaroline.

Conclusion:

Serotypes 3, 1, 8, 12F and 7F were the most prevalent among adult patients representing 41.5% of the isolates. During the period of study there was no significant difference in serotype distribution between 18-64 and >65 years old, except serotypes 1 and 23A. In the same way, no significant differences were observed in antimicrobial resistance among 18-64 and >65 years old patients. Antibiotic resistance was mainly associated to serotypes 24, 19A and 14. A continuous National Surveillance Program of SPN serotypes and antimicrobial resistance in adults with IPD is warranted to assess future changes in the epidemiology and the vaccination impact.

Argentina Spn Working Group: H. Aleman-CABA: Fernandez Canigia L, H. Municipal R. Santamarina-Tandil: Sparo M, H. Austral-Pilar: Vilches V, CEMIC-CABA: Smayevsky L, H .I. San Juan Bautista-Catamarca: David V, H. Piñero-CABA: Amalfa F, H. Privado de la Comunidad-Mar del Plata: Vallejo M, Clinica Sanager-Cordoba: Ledesma E, H. Avellaneda-Tucuman: Cudmani N, H. Clinicas Jose de San Martin-CABA: Famiglietti A, H. Garrahan-CABA: Casimir L, Epidemiologia Cordoba, H. Zatti-Viedma: Stafforini G, H. Aramburu-Pehuajó: Mazzoconi C, H. Alassia-Santa Fe: Baroni M, H. Guemes-CABA: Muñoz S, H. Muñiz-CABA: Quinteros M, H. R. Rio Gallegos: Cano H, H. San Jose-Cordoba: Gentilini A, H. Sor M. Ludovica-La Plata: Vescina C, H. Eva Peron-Gral Baigorria: Gregorini, H. Moron: Garrone M, H. Sma Trinidad-Cordoba: Montanaro P, I. Medico Madariaguense: Latus G, H. Mun.Rivadavia-CABA: Vergara Aldo, Sanatorio Pasteur-Catamarca.