



Antibiotic Resistance of *Streptococcus Pneumonia* Serotypes

Alexandre Ladermann *

Department of Virology, University of Porto, Praca de Gomes Teixeira, Porto, Portugal

ABOUT THE STUDY

The purpose of this study was to document the various serotypes of *P. pneumococcus*, as well as their sensitivity and susceptibility to common antibiotics used in the treatment of pneumonia. Here the *Streptococcus pneumonia* is the leading cause of pneumonia, an infectious disease that kills up to 156 million people worldwide each year, with 151 million of those deaths occurring in developing countries. *S. pneumonia* is the leading infectious cause of death in children and the elderly worldwide. According to WHO (2017), pneumonia killed 9,20,136 children under the age of five in 2015, accounting for 16% of all children under the age of five deaths. The disease has a heavy toll, which accounts for more than half of all deaths worldwide. The pneumonia kills up to 26% of children under the age of five, resulting in 125,000 deaths each year (mortality rank of 39).

There are over 94 different pneumococcus serotypes that have been isolated, with only a few of them being invasive. The various serotypes have been observed to vary depending on the geographical location and age of the patient, with children aged 0 to 23 months having the highest risk. Pneumonia is treated with various antibiotics, though various serotypes have shown resistance to specific antibiotics.

Pneumonia is still the leading cause of death in children under the age of five worldwide, accounting for approximately 1.6 million deaths each year. *Streptococcus pneumonia* has been identified as the most capable bacterial pathogen causing pneumonia infections in infants and the elderly, resulting in significant morbidity and mortality. There are currently over 94 different serotypes of *Streptococcus pneumonia*, and many of them have emerged as drug-resistant strains, throwing a wrench into current treatment strategies. In order to design new strategies for treating and managing pneumococcal infections, detailed information on current antibiotic susceptibilities, resistance, and

serotype distribution will be required. Between 2017 and 2018, 309 *S. pneumoniae* isolates were collected from patients at the Kisii Teaching and Referral Hospital.

PCR was used to collect and serotype nasopharyngeal samples. The samples were cultured and tested for drug sensitivity with various concentrations of Oxacilin, Erythromycin, Tetracycline, Ofloxacin, Trimethoprim/Sulfamethoxazole, and Chloramphenicol. 235 of the 309 samples collected tested positive for *S. pneumonia*, despite the fact that 10 of the samples had incomplete data. From the 309 samples, 41 *S. pneumonia* serotypes were isolated, with the most common serotypes being non-typable(11%), 15B(7.6%), 19F(7.0%), 19A(6.7%), 23B(5.8%), 23F(5.3%), and 6A(4.4%). All serotypes were resistant to Oxacilin and Trimethoprim/Sulfamethoxazole, but sensitive to Erythromycin, Ofloxacin, and Chloramphenicol. Tetracycline sensitivity was 75%, with the remaining 25% showing intermediate sensitivity.

They revealed a high rate of *S. pneumonia* (76%) with various serotypes for different ages. The various serotypes isolated demonstrated significant resistance to commonly used antibiotics in patient samples of varying ages. The isolated serotypes also included serotypes 19A, 6A, and 5B, which are not included in the Pneumococcal Vaccine (PCV 10). This will provide useful information for improving clinical treatment, management, and prevention of *S. pneumonia* infections.

Although there are many non-typable serotypes and serotype combinations, the most common invasive serotypes are 15B, 19F, 19A, 23B, 23F, and 6A. There is widespread resistance to commonly used antibiotics in people of all ages and serotypes. The isolated serotypes also included serotypes 19A, 6A, and 5B, which are not included in the Pneumococcal Vaccine (PCV 10). This information will be useful in improving clinical treatment, management, and prevention of *S. pneumonia* infections.

Correspondence to: Alexandre Ladermann, Department of Virology, University of Porto, Praca de Gomes Teixeira, Porto, Portugal, E-mail: alexman@upo.pt

Received: 02-Aug-2022, Manuscript No. JVV-22-18118; **Editor assigned:** 04-Aug-2022, PreQC No. JVV-22- 18118 (PQ); **Reviewed:** 18-Aug-2022, QC No. JVV-22-18118; **Revised:** 25-Aug-2022, Manuscript No. JVV-22-18118 (R); **Published:** 02-Sep-2022. DOI: 10.35248/2157-7560.22.S20.001

Citation: Ladermann A (2022) Antibiotic Resistance of *Streptococcus Pneumonia* Serotypes. J Vaccines Vaccin. S20:001.

Copyright: © 2022 Ladermann A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.