

Serotype Distribution Pattern of *Streptococcus pneumoniae* Isolates from Invasive Infections at a University Teaching Hospital in Northern Nigeria

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Published August 10, 2019

ABSTRACT

Background: Infections with *Streptococcus pneumoniae* are endemic worldwide. It is a public health problem and responsible for 1.6 million of 8.8 million annual deaths of children under 5 years of age, with 50% occurring in sub-Saharan Africa. This descriptive study was done to determine the prevalent *S. pneumoniae* serotypes responsible for infections at Ahmadu Bello University Teaching Hospital, Shika-Zaria, Nigeria.

Materials and methods: Clinical specimens of blood, cerebrospinal fluid and aspirates from abscess, ear swab, throat swab, pus and sputa were collected over a period of 18 months from 420 patients with pneumonia, meningitis, septicemia and otitis media. Specimens were cultured on 5% defibrinated sheep blood agar and chocolate agar. Incubation was done aerobically in a CO-enriched atmosphere at 37°C for 18-24 h.

Isolates of *S. pneumoniae* were identified by standard biochemical techniques using Gram reaction, catalase test, Optochin disc and bile solubility tests. Antimicrobial susceptibility was determined by the modified Kirby-Bauer disc diffusion method with Mueller-Hinton agar supplemented with 5% sheep blood. Serotyping was done using the slide agglutination method (Denka Seiken Co. Ltd., Japan). The serotype final results were recorded as matching, discordant or non-typeable.

Results: A total of 420 patients participated in this study, in which 227 were males (54%) and 193 were females (46%). Participants' ages ranged from 2 days to 85 years. *S. pneumoniae* isolates were mainly from blood 12 (52.2%) and sputum 6 (26.1%). Samples with most isolates were from the pediatric age group of 15 years (65.2%). The serotypes identified were 6, 19 and 20 which were all from blood, as none of the strains from sputum was typeable.

Conclusion: The major *S. pneumoniae* serotypes found in this study were 6, 19 and 20.

Keywords: Capsule, Serotype, *Streptococcus pneumoniae*, Northern Nigeria

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Citation: Suleiman MR, Ejembi J, Giwa FJ, Jimoh O, Suleiman AO, et al. (2019) Serotype Distribution Pattern of *Streptococcus pneumoniae* Isolates from Invasive Infections at a University Teaching Hospital in Northern Nigeria. J Immunol Res Ther, 4(S1): 13.

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