

Comparison of Nasopharyngeal carriage of Pneumococcus and its serotypes among Nepali children hospitalized with severe and non-severe pneumonia

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Introduction:

The ten-valent pneumococcal conjugate vaccine was introduced in Nepal in 2015. We assessed pneumococcal nasopharyngeal carriage and serotype distribution, and the impact of vaccine on them among children with severe and non-severe pneumonia admitted to Patan Hospital, Nepal.

Methods:

From 2014 to 2019, nasopharyngeal swabs were obtained from children aged 2-59 months hospitalized with suspected pneumonia. Swabs were cultured for pneumococcus; isolates were serotyped. We classified each pneumonia case as severe or non-severe using WHO definitions.

Results:

Of 1770 children, 559 had severe pneumonia, 691 had non-severe pneumonia and 520 met neither classification. Pneumococcal carriage prevalence was 34.5% among severe and 41.2% among non-severe cases ($p=0.015$). The prevalence of PCV10 serotypes, additional PCV-13 serotypes (19A,3,6A), non-typeables and remaining non-PCV13 serotypes were 8.8%, 5.2%, 6.1% and 14.5%, respectively, among severe cases, and among non-severe cases were 10.1%, 4.9%, 5.2% and 21.0%, respectively. The proportion of isolates that were PCV10-types declined among 6-23 month old severe and non-severe cases, from 24% and 35% pre-PCV (2014-2015) to 14% ($p=0.25$) and 11% ($p=.003$) post-PCV (2017-2018), respectively.

Conclusion:

All pneumococcal carriage prevalence was more common in non-severe than severe cases in Nepalese children hospitalized with suspected pneumonia. PCV10-type carriage declined more in the non-severe cases.