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IMPACT OF THE INTRODUCTION OF THE PNEUMOCOCCAL CONJUGATE VACCINE ON PAEDIATRIC PNEUMONIA CASES IN NEPAL

Background

PCV10 was introduced into the infant immunization programme in Nepal in 2015. We assessed the impact of PCV10 on pneumococcal nasopharyngeal carriage in children with pneumonia.

Methods

All children with pneumonia aged 2 months to <14 years admitted to Patan Hospital, Nepal, between March 2014 and 31st December 2018 were included. Nasopharyngeal swabs were transported in STGG medium, cultured and serotyped by the Quellung method.

Results

Pneumococcal carriage was 37.2% pre-vaccine (2014-2015) among n=425 pneumonia cases and 43.5% post-vaccine in 2018 (n=393 cases). Vaccine-type carriage decreased significantly, from 14.6% pre-vaccine to 6.1% in 2018 (prevalence ratio=0.45, p=0.0002). Serotypes 14 (4.7%) and 1 (3.3%) were the most prevalent pre-vaccine; post-vaccine (2018) they decreased to 1.0% and 1.5%, respectively. In 2018, serotypes exceeding 2% were 19A (2.8%), 6A (2.5%) and 23A (2.0%). Cumulatively, the three additional

PCV13-types did not significantly increase (3.8% pre-vaccine, 6.4% in 2018; prevalence ratio=1.59, p=0.15). Non-typeable pneumococcus was common in both periods (7.1% pre-vaccine vs. 6.6% in 2018).

Conclusions

Nasopharyngeal carriage of PCV10 serotypes has declined in pneumonia cases since vaccine introduction. The additional serotypes in PCV13 have increased but by less than 3%. The serotypes carried among pneumonia cases are important when considering changing to vaccines with broader serotype coverage.

Key Words: Pneumonia, Children, Nepal, “Pneumococcal Conjugate Vaccine”, “Vaccine impact”