

Immunological Responses to Pneumococcal Conjugate Vaccine and Intestinal Nematodes Infestation in Children.

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ABSTRACT

Pneumonia is among the leading killer diseases of children under five years in Kenya. The most common bacteriological cause of severe and fatal pneumonia is *Streptococcus pneumoniae* (*S. pneumoniae*). *S. pneumoniae* is usually carried in the nasopharynx of healthy people, but occasionally leads to invasive pneumococcal diseases (IPDs), such as meningitis, pneumonia, otitis, sinusitis and bacteremia. Annually, World Health Organization (WHO) estimates the occurrence of one and a half million of deaths in children under five years, mainly in poor countries. In Kenya, A 10-valent Pneumococcal Conjugate Vaccine (PCV10) introduction into routine immunization schedule has resulted in reduction of the incidence of Invasive Pneumococcal diseases (IPD). However, there is a need to systematically evaluate the confounding factors that limit vaccine efficacy. A common although often overlooked confounding factor in the PCV10 vaccination efficacy is the presence of gastrointestinal nematode parasites in humans, particularly in children living in slums. Here the intestinal nematodes are prevalent and their effects result in an immune compromised state. We review the possibility of concurrent intestinal nematode infestation altering PCV10-induced responses in children and the need to devise efficacious treatment strategies.

Keywords: Intestinal nematodes; child health; pneumonia; vaccines; immune responses; infectious diseases.

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