Pneumococcal conjugate vaccine is effective for preventing community-acquired pneumonia

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A 10-valent pneumococcal conjugate vaccine (PCV) is effective in reducing the number of new cases of likely-bacterial community-acquired pneumonia in infants in Latin America, according to a study published in this week's *PLOS Medicine*. Xavier Sáez-Llorens and colleagues from Department of Infectious Diseases, Panama found that the 10-valent PCV reduced the number of new cases of likely-bacterial community-acquired pneumonia in infants by 22% (95% CI: 7.7, 34.2) compared to those who received the control vaccine in the per-protocol cohort at the pre-planned interim analysis (average follow-up of 23 months), which was the primary outcome of the study.

The researchers reached these conclusions by performing a double-blind randomized controlled trial (the Clinical Otitis Media and Pneumonia Study; COMPAS) that enrolled around 23,821 infants living in urban areas of Argentina, Panama, and Colombia. Half of the infants were randomly assigned to receive the 10-valent PCV at 2, 4, and 6 months of age and a booster dose at age 15–18 months, with the remaining half receiving a hepatitis control vaccine at the same intervals. At the end of the study (average follow up 30 months), the number of new cases of likely-bacterial community-acquired pneumonia was 18.2% (95% CI: 4.1%, 30.3%) lower in the per-protocol analysis in those receiving the 10-valent PCV compared to those receiving the control vaccine. The vaccine also led to a 16.1% (95% CI: -1.1%, 30.4%; one-sided p = 0.032) reduction in confirmed acute otitis media, a 67.1% (95% CI:

17.0%, 86.9%) reduction in vaccine serotype acute otitis media, a 65% (95% CI: 11.1%, 86.2%) reduction in any invasive pneumococcal disease, and a 100% (95% CI: 74.3%, 100%) reduction in vaccine serotype invasive pneumococcal disease. Serious adverse events were reported in about one-fifth of children, with a similar number of reports in those receiving the PCV and control vaccine, and were not thought to be attributable to the PCV.

The robustness of these findings may be limited by the withdrawal of 14% of participants from the trial mostly because of adverse media coverage in 2007/2008 due to unfounded rumors of a causal relationship between the vaccine and infant mortality, and by the low number of reported cases of acute otitis media. However, these findings show that this vaccine is efficacious against pneumococcal diseases that often affect young children in Latin America.

The authors say: "Now, children of Latin America and elsewhere in the world can benefit from a vaccine that has demonstrated efficacy against a variety of pneumococcal infections associated with substantial morbidity and mortality".

More information: Tregnaghi MW, Sa´ez-Llorens X, Lo´pez P, Abate H, Smith E, et al. (2014) Efficacy of Pneumococcal Nontypable Haemophilus influenzae Protein D Conjugate Vaccine (PHiD-CV) in Young Latin American Children: A Double-Blind Randomized Controlled Trial. *PLoS Med* 11(6): e1001657. DOI: 10.1371/journal.pmed.1001657

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