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Responses of Pediatric Patients with Recurrent Otolaryngologic Infections with Non-protective Streptococcal Titers to Vaccination

Background: *Streptococcus pneumoniae* is the most common bacterial cause of sinus and ear infections in pediatric patient populations. Fortunately, pneumococcal conjugate vaccines exist and are routinely administered in pediatric populations; unfortunately, immunologic response to the vaccine varies between individuals, with conferred immunity providing varying levels of protection from subsequent pneumococcal infections. This study aims to determine the relationship of pneumococcal vaccine response with recurrent and chronic pneumococcal infection, especially in children who have been revaccinated after a measured non-responsive titer level.

Methods: A retrospective chart review of pediatric patients (age 0-20 years) identified n=366 patients with defined recurrent or chronic ear and sinus infections. Data was collected on PCV7, PCV13, and PCV23 vaccination as well as pneumococcal titer levels.

Results: At presentation, an average of 71% of subjects tested had unprotective titers for pneumococcus. After revaccination, if necessary, and minimum 6-week interval for development of antibody response, an average of 20% of patients appear to remain nonresponsive. An average of 2% of patients remained nonresponsive after up to 4 titer measurements.

Conclusion: Preliminary data suggests there is a correlation between recurrent infections and poor responses to 13-valent conjugated vaccination, which is even stronger for patients with recurrent and chronic sinus and ear infections. These patients appear to respond to pneumococcal vaccination with 23-valent, with only 2% of patients with complete failure to respond. Those 2% require further examination and assessment by a specialist in Pediatric Allergy and Immunology as more serious immunodeficiency may be identified.