EFFECTS OF MATERNAL OR NEONATAL VACCINATION WITH PREVENAR13™ ON INFANT PNEUMOCOCCAL SPECIFIC MEMORY B-CELL RESPONSE AT 5 MONTHS OF AGE WITHIN THE PROPEL TRIAL IN THE GAMBIA

Amadou Faal[1], Mustapha Jaiteh[1], Fatoumatta Foon[1], Elishia Roberts[1], Sophie Roetynck[1], Ed Clarke[1]

[1]Vaccines and Immunity Theme, Medical Research Council Unit The Gambia, Fajara, The Gambia

Background

Streptococcus pneumoniae remains a leading cause of morbidity and mortality worldwide despite the availability of pneumococcal-conjugate vaccines. The first dose of these vaccines is generally given at 6-8 weeks of age leaving a window of susceptibility in early infancy. Given exceptionally high rates of carriage in many low-income settings, which is unlikely to be entirely addressed by herd protection, there remains a significant burden of pneumococcal disease in this age group.

Methods

These data are being generated in a blinded trial, which is exploring the effect of maternal (28-34 weeks gestation) or neonatal (within 1 week of life) Prevenar13™ vaccination on vaccine-type (VT) pneumococcal carriage in infants up to 20 weeks of age. To more fully characterize the effects of both regimens on humoral immunity, pneumococcal VT-specific memory B-cell numbers in infants at time points up to the end of their 3 dose primary series are being determined. Selected pneumococcal VT-specific and carrier protein (diphtheria toxoid (DT)) specific memory B-cell numbers are being enumerated in the blood of mothers at delivery and their infants at birth, 8 and 20 weeks of age, using B-cell cultured ELISpot. All mothers received tetanus toxoid, which is used as the control antigen.

Results

Examining blinded data, DT-specific memory B-cell responses were observed in 48.0% of maternal samples at delivery and 34.8, 33.4 and 57.2% of infant samples at birth (cord), 8 and 20 weeks of age, respectively. Memory B-cells specific for pneumococcal polysaccharide from serotypes 1 (40.9, 35 and 35.7%), 3 (42.3, 40 and 28.6%), 5 (33.4, 40 and 35.7%) and 19A (37.8, 36.8 and 46.2%) were also detected in infants at birth, 8 and 20 weeks of age, respectively. In all the infants, there was an increase in memory B-cells frequency from birth to 20 weeks of age, irrespective of antigen specificity.

Conclusion

These preliminary results confirm our ability to enumerate antigen specific memory B-cells in these mothers and infants. The effects of maternal and neonatal vaccination on these responses will be determined.