

## ABSTRACT

A one-year longitudinal study was carried out on 2 groups of Kenyan intrauterine growth retarded infants and normal weight full-term infants to determine the effects of intrauterine malnutrition and other nutrient deficiencies on immune function. Three birth weight groups were studied: <2500 gm (3rd percentile); 2500-2799 gm (3rd to 10th percentile); and ≥2800 (10th percentile). B cell function was studied by determination of B lymphocytes and serum levels of IgG, IgM, IgA and IgE. T-cell function was studied by measuring lymphocyte numbers, the percent and absolute number of T-cells by E-rosette technique, lymphocyte responsiveness to PHA and the intradermal PPD responses to BCG vaccine. Maternal and infant nutritional studies were obtained concurrently. At birth B cells and immunoglobulins were normal and comparable in all groups except that seven of 41 infants had elevated IgE levels in their cord blood. By 7 months adult levels of IgG, IgM and IgE were achieved in the intrauterine growth retarded infants. Their mothers had significantly higher levels of IgG than the control mothers. Total lymphocyte counts, T-cells and percent T-cells were significantly reduced at birth in the IUGR groups. This abnormality persisted until one year in the smallest (<2500 g) birthweight group. The IUGR infants had a higher incidence of cutaneous anergy to PPD than did control infants. Cell-mediated immunity correlated significantly with birthweight, blood levels of iron and thiamin at birth and with folate, hemoglobin, pyridoxine and riboflavin at 6 and 12 months.

## Keywords

- Immunity;
- Intrauterine growth retardation;
- Nutrition deficiencies;
- Cellular immunity;
- Anergy;
- Elevated IgE