BIOCHEMICAL AND IMMUNOLOGICAL COMPOSITION OF HUMAN COLOSTRUM AND CORD BLOOD SERUM OBTAINED FROM A GROUP OF SRI LANKAN WOMAN OF LOW SOCIO - ECONOMIC STATUS - (A PRELIMINARY SURVEY)

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Quantitative biochemical and immunological data on the composition of human colostrum and cord blood serum are not available for Sri Lankan Women. In order to investigate the correlation between these data with maternal nutrition and morphometry of placenta, the following investigations were made on 62 samples of cord blood and 50 samples of colostrum from the same subjects.

Colostrum: Total protein (Biuret method), Immunoglobulin A. Immunoglobulin G and Secretory Ig A (single radial immunodiffusion) levels.

Cord Blood Serum: Total protein (Biuret method), Vitamin B_{12}, Triiodothyronine (T_3), Thyroxine (T_4) and Cortisol (radioimmunoassay techniques), Immunoglobulin A and Immunoglobulin G (single radial immunodiffusion) levels.

Vitamin B_{12}, T_3, T_4 and Cortisol levels in human cord blood serum are reported for the first time in Sri Lanka. Vitamin B_{12} levels showed a wide variation (100 to 1460 pg/ml) with a mean of 599.4 pg/ml. Cortisol and T_4 ranged from 2.3 to 11.3 μg/100 ml. and 1.3 to 18.3 μg/100 ml. with a mean of 6.81 μg/100 ml. and 11.39 μg/100 ml. respectively. The cord blood serum immunoglobulin levels showed a positive correlation with the placental mass.

"Transfer of maternal antibodies to the foetus is of considerable importance in the immune mechanism of the neonate. In man the route is solely trans-placental, but antibodies contained in colostrum appear to help combat infections of the intestinal tract. Only IgG is transferred in man, and elevated IgM / IgA levels may be due to :

(1) Active synthesis by the foetus,

(2) Maternal, bleeding into the foetal circulation.

Determination of IgM / IgA levels in cord serum is used in the diagnosis of perinatal infections. In this paper we are reporting the normal values for cord serum IgG, IgM and IgA."