

Cyanocobalamin in Human Cord Blood and Family Income

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Abstract : Cyanocobalamin levels were determined in human cord blood obtained from 23 mothers of very low family income and 31 mothers of average income. The cyanocobalamin content of cord blood in the very low income group was found to be significantly less than that of the average income group.

1. Introduction

Cord blood is known to contain more cyanocobalamin than comparable maternal blood.¹ It is also known that, in some species, nutritional deprivation of the mother during the second half of pregnancy results in small placentas.³ In this investigation, cord blood cyanocobalamin content of two socio-economic groups were compared.

2. Materials and Methods

Placentas and cord blood were obtained from 54 subjects at the time of delivery. They were from the General Hospital, Kandy. The criteria for classification was family income. Monthly family income of Rs. 250/- or less has been considered as very low income and a monthly income of Rs. 300/- to Rs. 600/- as average income. Twenty three subjects belonged to the lower income group.

From each placenta, excess blood was blotted off, the membranes trimmed, the umbilical cord cut within 2 cm of it's origin and the weight determined. Cord blood was allowed to clot, serum separated and stored at -20°C . Maternal weights and birth weights were also recorded.

The cord blood cyanocobalamin levels were determined by the method of Green *et al.*²

3. Results and Discussion

Table 1 compares the maternal weight, birth weight, placental weight and cord blood cyanocobalamin levels for the two income groups. The lower income group had a significantly lower cord blood cyanocobalamin level than the average income group. The maternal, birth and placental weights were also lower, but not significant. There was no significant relationship between cord blood cyanocobalamin level and placental weight.

TABLE 1. Comparison of Maternal Weight, Birth Weight, Placental Weight and Cord Blood Cyanocobalamin of the two Income Groups.

		Monthly Income	
		Less than Rs. 250/-	Between Rs. 250/- and Rs. 600/-
Maternal weight (Kg)	mean \pm S.D.	47.5 \pm 4.2, N = 20	49.9 \pm 5.4, N = 30
Birth weight (g)	mean \pm S.D.	2691 \pm 445, N = 23	2774 \pm 382, N = 29
Placental weight (g)	mean \pm S.D.	358 \pm 87, N = 23	385 \pm 87, N = 31
Cord blood cyanocobalamin, (pg/ml)	mean \pm S.D.	468 \pm 254*, N = 22	652 \pm 348*, N = 30

*Significant difference, $t = 2.118$, significance level = 0.05.

N = Number of subjects.

The average cord blood cyanocobalamin content in the present series is less than that reported by Rosenthal and Wilbois.⁴ Such variations are to be expected in the light of differences in racial, economic and nutritional factors.

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