

# MEAN HAEMATOLOGICAL VALUES IN PREGNANT WOMEN AT TERM, AND AFTER DELIVERY IN CAPE TOWN\*

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Hitherto, in South Africa there has been no survey of mean haemoglobin, packed-cell volume and mean corpuscular haemoglobin concentration values in healthy White, Cape Coloured and African women during pregnancy. The 3 available reports in this country consist only of mean haemoglobin values, which by themselves are difficult to assess and in pregnancy may be subject to alteration by physiological changes in the blood volume. The object of the present investigation was to ascertain mean haematological values at term and after delivery in the 3 main racial groups in Cape Town. This was done as a preliminary enquiry in a study of the relationship between maternal iron-deficiency anaemia and the haemoglobin level of the infant.

## Material

Two hundred and forty-three women were examined at term (during the first stage of labour). Of these, 201 were again examined 3 months after delivery. The series comprised 131 White, 77 Cape Coloured, and 35 African women. They were a random selection of women attending antenatal clinics and confined at various maternity institutions attached to the University of Cape Town. Because the investigation was done on patients delivered in institutions, it is likely that this group contained an undue proportion of primigravidae and of women who had had previous obstetric complications.

All these women were given a routine general medical examination at their first attendance and were found to be healthy. Serological tests for syphilis were negative in all cases. Only those who had full-term normal pregnancies and normal labours on this occasion, and who delivered without incident, were included. Any women who had haemorrhagic

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episodes before, during, or after this delivery were excluded as were patients whose deliveries were complicated by mid-forceps, rotation and breech babies, or any whose deliveries required anaesthetics. None had received prophylactic iron therapy during pregnancy.

The mean ages were 26.11, 26.76 and 24.71 years, and the mean parity 2.38, 3.08 and 2.44 in the White, Cape Coloured and African women respectively.

The mean income per week of the families from which these women came was £14.09, £5.27 and £3.68 for White, Cape Coloured, and African women respectively. These amounts place them in the 'medium income' groups in their respective sections of the community.

## Methods

Blood investigations were done on venous blood from the anterior cubital vein. The haemoglobin estimations were done by the oxyhaemoglobin method using a Klett-Summerson colorimeter previously calibrated for the purpose against standard haemin and cyanmethaemoglobin solutions. Packed-cell-volume estimations were made by the standard Wintrobe procedure.

## Results

The results of this investigation are shown in Table I. The mean haemoglobin levels at term were 11.54 g. per 100 ml., 11.0 g. per 100 ml., and 11.62 g. per 100 ml.; the mean packed cell volume values at term were 39.89%, 38.87% and 41.21%; and the average mean corpuscular haemoglobin concentration levels at term were 28.87%, 28.35% and 28.10% for the White, Cape Coloured and African pregnant women respectively.

The mean haemoglobin values in 201 of these women 3 months after delivery were 12.47 g. per 100 ml. for White, 11.25 g. per 100 ml. for Cape Coloured, and 12.09 g. per 100 ml. for African women.

TABLE I. MEAN HAEMATOLOGICAL VALUES OF PREGNANT WOMEN AT TERM AND AFTER DELIVERY IN THE THREE MAIN RACIAL GROUPS IN CAPE TOWN

Race	Haemoglobin g.%						PCV%			MCHC%		
	At term			At 3 months postpartum			At term			At term		
	Number	Mean	S.D.	Number	Mean	S.D.	Number	Mean	S.D.	Number	Mean	S.D.
White	131	11.54	1.40	112	12.47	1.04	130	39.89	4.19	130	28.87	1.83
Cape Coloured	77	11.00	1.58	63	11.25	2.43	70	38.87	4.59	70	28.35	4.21
African	35	11.62	1.24	26	12.09	1.05	33	41.21	4.22	33	28.10	1.65

Taking an MCHC value of 30% as the critical lower level of normality, 76.2% of White, 81.4% of Cape Coloured, and 93.9% of African pregnant women at term in this series, who did not receive prophylactic iron therapy during pregnancy, were found to have iron-deficiency anaemia.

#### *Conclusion*

There is a high incidence of iron-deficiency anaemia in healthy pregnant women at term in the 3 main racial groups in Cape Town. This is probably due to the inadequacy of their diets in meeting the physiological demands, during pregnancy, for iron. At 3 months after delivery there was a

slight rise in haemoglobin levels in the 3 racial groups even without iron supplements.

The high incidence of iron-deficiency anaemia in pregnant women in Cape Town stresses the need for prophylactic iron therapy to be given in adequate doses during pregnancy.

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