

USE OF PARENTERAL IRON DEXTRAN, FOLIC ACID AND B12 IN NUTRITIONAL ANAEMIAS

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Studies in India have shown that about one third of the cases of pregnancy anaemias are dimorphic in nature i.e. there is a combined deficiency of iron, folic acid and B12 (Menon, 1954; Rao, 1969; Gajwani *et al*, 1968). Gajwani *et al*, have shown that 16 cases out of 61 with iron deficiency anaemia had low serum folate levels. Folic acid deficiency was not well recognised till recently, but after the advent of the standardised technique for the estimation of serum folate and B12, more workers have emphasized the presence of folic acid deficiency, even without megaloblastic changes in the bone marrow.

Studies in 1348 pregnant women were carried out in Delhi (WHO Report) showed that 30 per cent of the women had serum B12 levels below 80 μ u/ml; whereas 49 per cent of the women in a rural area 30 miles away from Delhi had serum B12 levels below 80 μ u/ml. Similar studies in Vellore (WHO Report) showed that evidence of megaloblastic change was found in the bone marrow in 66 per cent of the women at term. Seventy per cent of the women had serum folate levels below 6 μ g/ml. Our studies at S.S.G.

Hospital Baroda, have shown that 45 per cent of the anaemic pregnant women had serum folate levels below 5 μ g/ml.

It is clear from the above studies that there is a need for prophylactic administration of iron and folic acid in all pregnant women. Therapeutic doses of iron and folic acid would be necessary in nutritional dimorphic anaemias. Oral administration of iron and folic acid would be sufficient for prophylaxis of pregnancy anaemias. However, in severe cases of nutritional anaemias, oral medication of iron and folic acid may not suffice and parenteral use of these may be necessary for predictable response. Saraya *et al* (1970) suggested the possibility of malabsorption of folic acid in cases of hookworm infestation. It would be better to give iron and folic acid by injection instead of giving iron parenterally and folic acid by mouth. Experience has shown that patients cannot be relied upon to take iron regularly by mouth. This is equally true for regular daily intake of folic acid.

Material and Methods

The present study consists of 60 cases of anaemia from the Obstetrics and Gynaecological wards of the S.S.G. Hospital, Baroda. The haemoglobin was estimated in every case. Each patient was

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given 2 ml. of injection Imferon F12 containing 100 mg. of elemental iron as Iron Dextran, 5 mg. of Folic Acid and 1000 μ g. of B12 daily for 8 injections. A total of eight injections were given in the gluteal region. The haemoglobin values were repeated after 8 injections.

Analysis

Table I analyses the distribution of cases. Forty-five out of 60 cases were from the obstetric wards. Table II com-

TABLE I
Type of Cases

Antenatal	12
Postnatal	33
Gynaecological	15
Total:	60

TABLE II
Haemoglobin Rise

Initial Hb.	No. of cases	Average rise in 8 days	Range
Upto 5 G.	10	3 G.	.5 to 4.5 G.
5.1 to 6 G.	9	2.55 G.	1 to 4 G.
6.1 to 7 G.	8	1.45 G.	1.25 to 2.5 G.
7.1 to 8 G.	8	1.11 G.	.5 to 2 G.
8.1 and above	25	1.10 G.	0 to 3 G.

pares the range and average haemoglobin rise in relation to the original haemoglobin value. The rise in haemoglobin value is significantly higher in cases with low initial haemoglobin values. Rise of 3 G. per cent of haemoglobin was noticed when the initial haemoglobin value was less than 5 G. per cent.

The reactions to Imferon F12 were minimal. Two patients complained of bodyache and two had fever upto 99°F. It responded to aspirin. Pain at the injection site was not a significant feature.

Discussion

The newer techniques for investigation

of nutritional anaemias have shown that deficiency of iron, folic acid and B12 may exist even before it manifests as anaemia. There is a latent phase before the deficiency of iron and folic acid actually results in anaemia. If the patient could be treated in the latent phase, anaemia may not become manifest. Studies in India and elsewhere have confirmed the need to administer iron and folic acid in nutritional anaemias and also for prophylaxis in pregnancy.

The parenteral use of iron, folic acid and B12 needs justification. Saraya *et al* have shown megaloblastic marrow and dimorphic anaemia in women with hookworm infestation. They found low levels of serum folate (below 6 μ g/ml) in 66.7 per cent of the cases of hookworm infec-

tion. Serum B12 was below 200 μ g/ml in 82.4 per cent of cases. It is possible that hookworm infestation may cause folic acid and B12 deficiency. Moreover, patients cannot be relied upon to take oral iron or folic acid for a prolonged period which is necessary and oral absorption of Vitamin B12 would be erratic and thus predictable response cannot be achieved. These two reasons justify the parenteral use of iron, folic acid and B12. The levels of B12 are higher in the cord blood than in the maternal blood, this suggests that the foetus needs B12 for growth and rapid cell division.

The present study has clearly shown that parenteral use of iron, folic acid and B12 (Imferon F12) have shown better response, especially when the initial haemoglobin was low. There is no increase in the reaction rate if folic acid and B12 are added to iron.

We advocate that in countries where hookworm infestation is rampant and nutritional deficiency a common feature of anaemia, combination of iron, folic acid and B12 would give a better response than iron alone.

Summary and Conclusions

1. It is a study of 60 cases of anaemias treated with a new preparation (Imferon F12) containing iron, folic acid and B12.

2. The response in haemoglobin rise was much better, especially when origi-

nal haemoglobin was low.

3. There is no increase in the reaction rate.

4. In countries where hookworm infestation is common and nutritional anaemia is in significant degree, combination of iron, folic acid and B12 (Imferon F12) by parenteral route is desirable.

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