

Commentary

Use of intravenous iron sucrose for treatment of anaemia in pregnancy

India has always been a country with a high prevalence of anaemia. Indian obstetricians and nutrition scientists earlier documented that pregnant women were the most vulnerable group for anaemia. They reported adverse health consequences of anaemia in pregnancy on mother child dyad^{1,2}.

Obstetricians then embarked on a series of research studies to combat anaemia in pregnancy. During 1970s they showed that (i) daily oral iron folate therapy (60 mg of elemental iron and 500 µg of folic acid) prevented fall in haemoglobin (Hb) levels seen in pregnancy and resulted in some improvement in birth weight, and (ii) daily administration of two or maximum tolerated dose of oral iron folate (60 mg of elemental iron and 500 µg of folic acid) from the time of diagnosis of anaemia till delivery succeeded in correction of mild anaemia provided the compliance was good³⁻⁵.

Moderate anaemia (seen in about 15-20% of pregnant women majority of whom come to antenatal clinic after 20 wk of gestation) did not respond well to oral iron therapy because (i) one or two tablets a day was insufficient to raise the Hb levels beyond 11 g/dl; (ii) attempts to increase the dose resulted in increased side effects and reduced compliance; and (iii) increased dose also increased gut motility and reduced iron absorption^{6,7}. As a result, oral iron therapy was not found useful for treatment of moderate anaemia.

During the 1960s and 1970s a wide variety of intramuscular (im) and intravenous (iv) iron preparations were being developed and evaluated for treatment of anaemia in developed countries. Indian obstetricians with abundant case load conducted what was at that time world's largest series of studies exploring safety, efficacy and feasibility of intramuscular and intravenous iron therapy using mainly two preparations iron dextran and iron sorbitol citric acid complex¹.

The initial results with iv iron therapy were excellent; women had to be admitted only for two days for iv iron therapy; reaction to iv iron (for both preparations) were manageable; and the rise in Hb was satisfactory¹. Those who were given im iron dextran therapy had to come daily for 10-15 days to the OPD for injections; many women found this difficult. By about a week after starting the iron dextran injections about 20 per cent developed joint pains; swelling in the joints and fever was seen in about 5 per cent. The women with these symptoms responded to paracetamol but many women discontinued the injection. Intramuscular injection of iron sorbitol citric acid complex was relatively free of side effects but it was costly as about a third of the drug got excreted in urine most women required 15-20 injections; many found it difficult to come to the OPD for 20 days for injection¹.

Clinicians in medical colleges felt the iv iron therapy as a more feasible option and started using it as the preferred mode of management of moderate anaemia in pregnancy^{1,6}. At this stage of widespread use of iv iron in medical colleges, case reports of death due to anaphylactic shock began to appear^{1,6}. The complication was very rare but the fact that despite all intensive efforts the women died in medical college hospitals sent a warning signal. Obstetricians changed to the use of im iron dextran as the preferred mode of treatment for moderate anaemia^{1,6}. The Tenth Five Year Plan⁸ recommended the use of im iron for treatment of moderate anaemia in pregnancy. With improvement in economic status and more liberal funding available for hospitals in India, clinicians started to use of im iron sorbitol citric acid which had very few side effects and compliance improved. Feasibility and safety of use of im iron sorbitol citric acid for treatment of moderate anaemia in primary health care setting has been demonstrated^{9,10}.

In the last decade, iron sucrose had been widely used in treatment of anaemia associated with chronic renal failure in patients undergoing dialysis where it is convenient to give

iv iron at weekly intervals along with erythropoietin¹¹. The side effects were mild and very few major complications were reported. Encouraged by these reports, some obstetricians in middle eastern countries started using iv iron sucrose for treatment of anaemic pregnant women¹². Most of these studies were based on small number of cases and indications varied from poor compliance with iron folate therapy in women with mild anaemia to moderate anaemia management¹²⁻¹⁴.

In India, obstetricians started using iv iron sucrose for treatment of moderate anaemia in the last few years. In this issue, results of iv iron sucrose injections given to 100 pregnant women with Hb < 9 g/dl are reported¹⁵. These women on average required 1800 mg of iron which translates into 9 iv injections (each containing 200 mg of elemental iron); the response in terms of improvement in serum iron, ferritin and Hb levels was satisfactory. There were minor side effects and one case of thrombophlebitis¹⁵. During the last two years reports of deaths following iv iron sucrose injection have started appearing in journals and internet¹⁶. Recently the Government of India has released guidelines¹⁷ for treatment of iron deficiency anaemia in pregnancy. The current guidelines endorse the recommendations made in the Tenth. Five Year Plan that intramuscular iron is the treatment of choice in moderate anaemia in pregnancy. Regarding iv sucrose the guidelines recommend to wait for the results from the ongoing clinical trials. This caution is appropriate and should be heeded especially in view of the earlier experience with iv iron therapy that though anaphylactic shock is a rare adverse drug reaction, it is associated with high case fatality rate.

Currently used im iron sorbitol citric acid is safe as no deaths or severe adverse drug reactions have been reported with this drug which has been in use for over five decades. The need for 10 visits to the hospital for injections robs iv iron sucrose of the advantage that earlier single dose iv iron therapy had. With the available data that there has been a death with a single dose of iv iron sucrose, it might be preferable to err on the side of caution and use tried and tested im iron sorbitol citric acid complex for the management of moderate anaemia in pregnancy.

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