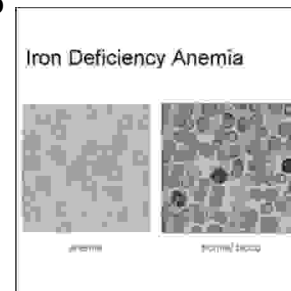


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## IRON DEFICIENCY ANEMIA; SAFETY AND EFFICACY ON INTRA VENOUS IRON SUCROSE VERSUS ORAL FERROUS SULPHATE



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**ABSTRACT... Objective:** To evaluate the safety and efficacy of intra venous iron sucrose(venofer) as compared to oral iron in treatment of iron deficiency anaemia during pregnancy. **Study Design:** Prospective study. Pregnant women with iron deficiency anaemia were selected from ante natal clinic. Patients were divided into two groups. Group A: These patients were given oral iron. Group B: These patients were given intravenous sucrose. All patients were evaluated for adverse effects, clinical and laboratory response >. **Results:** Intravenous group achieved a higher Hb level in a shorter period. Group B showed no major side effects while (80%) of patients in Group A developed gastrointestinal symptoms. **Conclusion:** Intravenous iron sucrose is safe and effective in treatment of iron deficiency anemia during pregnancy.

### INTRODUCTION

Iron deficiency with anemia or without anemia has many adverse effects on nervous system, physical response and pregnancy outcome<sup>1,7</sup>. These effects are exaggerated in pregnant women with iron deficiency anemia because of ability of fetus to extract its iron requirement even from iron deficient mothers<sup>8,9</sup>. 50% of women in the child bearing age are anemic due to menstrual blood loss and inadequate intake or absorption<sup>8,9</sup>. During pregnancy, there is great demand for iron to meet of requirement for red blood cell mass expansion in mother, fetus and placental blood loss at delivery in addition to increased occult gastrointestinal blood loss (Esophagitis, piles)<sup>10,14</sup>.

Although iron absorption may be adequate in healthy iron replete women. It is far below the requirement of an

iron depleted pregnant women<sup>10,19</sup>. This is aggravated by adverse effects of pregnancy on the gastrointestinal tract therefore parenteral iron is necessary in anemic patients.

### MATERIALS AND METHODS

Pregnant women having gestation age 30-32 weeks with iron deficiency anemia (Hb of less than 10mg/dl and greater than 7mg/dl) were included in the study. Patients Hb, peripheral film T.I.B.C. M.C.V and serum ferritin were sent. Those patients who were diagnosed as iron deficiency anemia were included in study and these were assigned to oral iron or intravenous sucrose therapy patients who had other causes of anemia like thalassemia were excluded from study.

The dose of iron sucrose was calculated as follows

Weight(kg) X (Hb target-Hb initial) X 0.3

In this study Hb target was taken as 10mg/dl

Group A in these patients were given ferrous sulphate 300 mg tablets three times a day. 9 each tablet contain 60 mg of elemental iron).

Group B these patients were given iron sucrose (2 Ampoules of venofer) in 100cc of normal saline initiated at 4-6 drops/min when patients develops no reaction the drops are increased to 10 drops/min and the infusion usually finished in one hour. Intravenous infusion was repeated on alternate days till the target Hb was achieved.

The patients were seen every 2 weeks and assessed for side effects compliance and laboratory response. This was assessed by repeating Hb level M.C.V and T.I.B.C.

**RESULTS**

Intravenous sucrose achieved higher levels of Hb M.C.V and serum ferritin as compared to oral iron group.

Table-I.		
Duration in which Hb deficiency was recorded	Group A	Group B
1-2 weeks	Nil	20
2-4 weeks	20	26
> 4 weeks	30	04

It was seen that Hb levels was achieved in lesser duration in patients on intravenous therapy as compared to oral iron therapy. It has been seen that 60% of patients achieved levels in four duration where as 40% of patients on intravenous therapy achieved levels in two first weeks. Only 85 of patients required four weeks to fulfil their Hb level.

It was seen that 80% of patients on oral iron developed gastrointestinal symptoms. Due to which patients were non compliant (did not adhere to three tablets/day). One

patient developed shivering and fever which disappeared by giving paracetamol. One patient developed mild anaphylactic reaction after which venofer was with held.

Table-II.		
Side Effects	Group A	Group B
Gastrointestinal tract symptoms (nausea, vomiting, constipation etc)	40	Nil
Shivering	Nil	01
Fever	Nil	01
Anaphylactic reaction	Nil	01

**DISCUSSION**

This study indicated that iron sucrose is safe, convenient and effective in pregnant women compared with oral iron. This rapid response was related to high amount of iron delivered directly to tissues. Oral iron therapy is not adequate for pregnant women with iron deficiency anemia because of increased demand for iron to meet the requirement of maternal anemia (500mg-1000mg) red cell expansion (400-600mg) placenta (250mg) fetus (200mg) blood lost at delivery (200-500mg). Even in patients who respond to oral iron require long time to reach target Hb. Therefore a pregnant women without anemia may require 1000mg of elemental iron and an anemic patient may require 2600mg, this requirement can not met by oral route due to limited absorption, bio-availability, and compliance.

Intramuscular iron therapy is discouraged because of its pain and staining<sup>20</sup>. Anaphylaxis is rare with intravenous iron sucrose therapy because of its low molecular weight. It is taken by reticulo-endothelial system so organic toxicity is rare. Unlike other parental intra venous iron sucrose is safe with infrequent, self limited side effects (fever, skin discomfort). These side effects of iron sucrose can be completely avoided the total dose into smaller dose (100-200 mg/day) and by slow administration (infusion over 1-4 hours)<sup>20,22</sup>.

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