



Effect of Iron Sucrose Infusion in Iron Deficiency Anemia During Pregnancy

KEYWORDS

IRON DEFICIENCY ANEMIA, IRON SUCROSE

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ABSTRACT OBJECTIVE:-

We had done our study to measure the efficacy of iron sucrose in iron deficiency anemia in antenatal patients.

METHOD:-

In our prospective study 50 patients were included.all of them were having usg maturity between 15-34 weeks. All of them were given iron sucrose i.v. according to their requirements.and follow-up was taken after 4 weeks by measuring Hb level.

RESULT:-

Hb level improved significantly (2.1 gms)within a short duration of interval.very few(12%) patients suffered from minor side effects.

CONCLUSION:-

Iron sucrose has been found very useful for correction of iron deficiency anemia in antenatal patients.

INTRODUCTION:-

Anemia is estimated to affect nearly two thirds of the pregnant women in developing countries . Iron deficiency anemia is responsible for 95% of the anemias during pregnancy . The responsible constellation of factors producing IDA generally precedes the pregnancy, including diet poor in iron content coupled with menstrual losses and a rapid succession of pregnancies in which supplemental iron was not provided. Most women begin their pregnancy with partially or completely depleted iron reserves.

Thus,the severity of the anemia is inversely related to the amount of iron reserves . During pregnancy, there is a great demand for iron to meet the requirement of red blood cell mass expansion in the mother, fetal and placental blood and blood loss at delivery .

In pregnancy, iron deficiency is exaggerated because of the ability of fetus to extract its requirement in obligatory one way direction even from iron deficient mothers .This is aggravated by poor absorption of iron due to adverse effects of pregnancy on the gastrointestinal tract, which include nausea and vomiting, motility disorder with reflux esophagitis and indigestion .

In underdeveloped countries, anemia is a major contributory factor to maternal morbidity and mortality . Inadequate antenatal care along with poor knowledge of dietary needs of pregnant woman, and overall poor socio-economic conditions are all responsible for this in our country . Other countries of the Asian region like Indonesia and India also report high prevalence of IDA in pregnancy and associated maternal and fetal loss. It is also associated with high perinatal mortality rate in our region .

A recent study reported a fetal mortality rate of 50% at 5 month, 28% at 7 months and 24% at 9months of gestation .

Over the past years, various oral, intramuscular and intravenous preparations of iron have been used for correction of IDA in the pregnant patients . However, they are associated with significant side effects and it is not possible to achieve the target rise in Hb level in a limited time-period when patient is approaching the term. Iron sucrose4complex (ISC) is a relatively new drug, which is used intravenously for the cor-

rection of IDA .

The drug has been able to raise the Hb to satisfactory level when used in severely anemic iron deficient pregnant women . The aim of this study was to assess the efficacy and tolerability of ISC in pregnant patients with IDA seen at our institution.

What is iron sucrose injection?

Iron sucrose is a form of the mineral iron. Iron is important for many functions in the body, especially for the transport of oxygen in the blood.

Iron sucrose injection is used to treat iron deficiency anemia in people with kidney disease. It is usually given with another medication to promote the growth of red blood .This medication is not for treating other forms of anemia not caused by iron deficiency.

Pharmacokinetics:-

Half-life elimination: 6 hr

Vd: 7.9-10 L

Clearance: 1.2 L/hr

Excretion: Urine (5%)

METHOD:-

we had done our study in V.S.HOSPITAL, A'BAD,during march to august 2013 .it was a prospective study.we had included 50 patients in our study who were suffering from iron deficiency anemia(Hb 6-8 gm%).they all were given iron sucrose infusion according to their requirment.

REQUIRMENT OF IRON=2.3[(12-pt's Hb)wt]+500 gms.

iron sucrose infusion was given on alternate day.a single dose consist of 200 mg iron sucrose in 100 ml normal saline.

EXCLUSION CRITERIA

- (1)pt having allergic reaction to iron sucrose
- (2)pt having usg maturity <15 weeks or >34weeks
- (3)pt having Hb <6 gm or>8 gm
- (4)anemia resulting from other causes

follow up was taken after 4 weeks , by measuring Hb level.

RESULTS:-**(1) DISTRIBUTION OF PATIENTS ACCORDING TO USG MATURITY**

MATURITY IN WKS	NO OF PTS	PERCENTAGE
15-20	4	8
21-25	14	28
26-30	24	48
31-34	8	16

Thus in our study almost 50% of the patients were having their maturity between 26-30 weeks.

(2) AVERAGE HB LEVEL IN DIFFERENT GROUPS

MATURITY IN WKS	AVERAGE HB
15-20	6.5
21-25	7.23
26-30	7.3
31-34	7

In our study the patients having least Hb level were among the lowest maturity group (15-20 weeks).

(3) AVERAGE INCREASE IN HB LEVEL

MATURITY IN WEEKS	AVERAGE INCREASE IN HB LEVEL (IN GRAMS)
15-20	2.6
21-25	1.8
26-30	1.8
31-34	2.3

This results conclude that the highest rise (after 4 weeks) in Hb level was seen among pt with 15-20 weeks maturity, followed by early third trimester (31-34 weeks).

(4) SIDE EFFECTS

SIDE EFFECT	NO OF PATIENTS	PERCENTAGE
MILD (nausea, vomiting, constipation)	2	4%
Moderate (diarrhoea, itching)	4	8%
SEVERE (bronchospasm)	0	0
Discontinuation of therapy	0	0

DISCUSSION:-

The fetus and placenta require about 500 mg of iron and a similar amount is needed for red cell increment. An average postpartum blood loss and lactation for six months each accounts for about 180 mg. From total of 1360 mg, 350 mg may be subtracted (saved as a result of amenorrhoea) to give an actual extra demand for about 1000 mg. This is unlikely to be provided by dietary iron but may be mobilized from full

iron stores (about 1000mg). It is the state of stores that largely determine whether or not a pregnant woman becomes anemic. The smaller her stores, the earlier the anemia occurs

Our study showed that iron sucrose complex can be used in the pregnant patients with

iron deficiency anemia .

Treatment of IDA has included oral iron, intramuscular iron, iron dextran, ISC, recombinant erythropoietin and blood transfusion . However, most of these have their disadvantages. Even patients who respond well to oral iron therapy require a long time (months) to reach target Hb compared with weeks required in case of treatment with ISC.

The compliance is always a problem and to improve this, even iron-rich natural mineral water has been tried to treat IDA in pregnant women .

The use of intramuscular iron preparations in IDA is discouraged because of pain, irregular absorption and staining. Upto 30% of patients who were given iron dextran suffer from adverse effects, which include arthritis, fever, urticaria and anaphylaxis .

In present study, only SIX of the 50 patients had mild side effects and none had anaphylaxis, thus showing the safety of the drug in the pregnant women. Side effects were limited in the present study because the total dose of ISC was administered at intervals and it was given in diluted form and slowly.

Type of preparation	oral iron	IM iron (iron dextran)	Iron sucrose
Duration of therapy	long	short	short
compliance	less	less	more
Side effects	More (constipation, staining, vomiting)	More (staining, itching, abscess pain)	Less (nausea, vomiting, constipation, diarrhoea, itching)

CONCLUSION:-

Out of 50 patients maximum number of pt's were between 26-30 weeks maturity. In all of them Hb level improved by an average of 1.8 grams.

In our study we found maximum improvement in Hb level during early second trimester (15-20 weeks).

Hb level has not increased upto the targeted level, but it has improved by average 2.1 Gms within a short duration (4 weeks).

Moreover only 12% pts suffered from minor side effects.

This study showed significant improvement of Hb and iron stores in pregnant women given calculated dose of ISC infusion. It was safe and well tolerated. In our country with frequent IDA found in pregnancy, this type of treatment may be helpful in management of these patients.

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