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Title: A Comparative Study of Injection Ferric Carboxy Maltose and Injection Iron Sucrose for Treatment of Iron Deficiency Anaemia in Pregnancy at Kamla Raja Hospital, Gwalior

INTRODUCTION

- Anemia is a common condition in pregnancy, affecting 41.8% of all pregnant women. Iron deficiency anaemia (IDA) in pregnancy affects anywhere from 23.6 percent to 61.4 percent of pregnant women in India.
- There is high incidence of anemia in India because of low dietary intake ,poor bioavailability, phytate rich diet,faulty food habits,increased prevalence of malaria and hookworm infestation.
- Anemia is described by the World Health Organization (WHO) as haemoglobin (Hb) less than 11 g/dl during pregnancy. Parenteral or oral iron supplements are the mainstay of treatment for iron deficiency anaemia. Ferric gluconate, iron sucrose, iron polymaltose, and most recently ferric carboxymaltose are some of the current intravenous iron formulations.
- Dextran free intravenous options include iron sucrose and ferric carboxymaltose. Ferric carboxy maltose (FCM) prevents Iron toxicity and oxidative stress . It has a physiological osmolarity, near-neutral pH (5- 7), and enhanced bioavailability, which enables the administration of high single dosages over shorter time periods.

AIMS

1. To determine the effectiveness of injection FCM in treatment of iron deficiency anaemia in pregnant woman and to compare it with Injection iron sucrose.
2. To determine the safety of injection FCM in treatment of iron deficiency anaemia in pregnant woman and to compare it with injection sucrose.

MATERIAL AND METHODS

Study Design: This prospective comparative study was carried out in the department of OBGY, G.R. Medical College, Gwalior, (MP) for a duration of six months from September 2021 to February 2022

Study Population: Pregnant woman between 20 to 34 weeks of gestation with moderate anaemia admitted in the Kamla Raja Hospital for the treatment of anaemia.

Sample size: This study included 100 pregnant woman.

Inclusion criteria:

- Gestational age between 20 to 34 weeks
- with Moderate anaemia (Hb 7-9.9 gm/dl)
- not in labor
- with no signs and symptoms of congestive heart failure.

Exclusion criteria:

- Pregnant woman who need urgent termination of pregnancy.
- Anemia due to acute blood loss.
- History of blood transfusions; history of bleeding tendencies; history of illnesses associated with iron overload; hypersensitivity reaction to any iron preparation, hemocromatosis, thalassemia.

Methods:

Study participants were divided into two groups

Group A:Participants received one dosage of 1000mg of injection FCM intravenously .

Group B: Participants received a total of 1000 MG of 200 mg/day of iron sucrose intravenously.

Followup: At 0 week, second week and third week following the final parenteral iron dose, Hb percent and ferritin were evaluated in both groups.

RESULTS

A total of 100 antenatal women were included in the study. Most of them were aged between 20-29 years. Majority of them were multigravida in both groups. Most patients in Group A (46%) and in Group B (46%) had their pre-treatment Hb in range of 8-8.9 g/dl. Majority of patients in both groups had their pre-treatment serum ferritin in range of 10-19.9 mcg/l.

No serious side effects were reported in any Group.Mild adverse effects like nausea,vomiting,diarrhoea , constipation etc were observed in 52 % of patients in Group B and 34 % in Group A.

Rise in mean Haemoglobin (gm/dl) level at 2nd weeks and 3rd week post treatment

	Hemoglobin (gm/dl)		Statistical inference (Unpaired t Test)
	Group A Mean ± S.D	Group B Mean ± S.D	
Rise in haemoglobin (gm/dl) at 2 week and third week post treatment	1.80 ± 0.58	1.07 ± 0.58	t= 11.42 P < 0.001 Highly significant

Rise in mean serum ferritin (mcg/L) at 2 week and 3rd week post treatment

	Ferritin (mcg/L)		Statistical inference (Unpaired t Test)
	Group A Mean ± S.D	Group B Mean ± S.D	
Rise in serum ferritin (mcg/dl) at 2 week and 3rd week post treatment	**134.91 ± 17.14**	**85.89 ± 11.64**	**t= 15.19 P < 0.001 Highly significant**

CONCLUSION

IDA is a significant indirect factor in maternal fatalities .Therefore, IDA diagnosis is crucial, and all pregnant women should have their anaemia treated before giving birth.

The mainstay of treatment for iron deficiency anaemia is iron supplementation administered intravenously or orally. Parenteral iron therapy is indicated when a patient's iron stores need to be restored quickly and when they are unable to tolerate oral iron.

Hb increased in the FCM group statistically significantly more than it did in the Iron Sucrose group. The FCM group also had considerably greater serum ferritin levels with relatively fewer adverse effects, all of which were moderate in nature.

From our study we concluded that injection Ferrous carboxy maltose appears to be safe and efficient for correction of iron deficiency anaemia in third trimester of pregnancy with lesser adverse effects and better patient compliance.

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