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Comparison Of Increase In Haemoglobin Value In Antenatal Anemia Treated With Oral Vs Iv Ferric Carboxy Maltose – A Prospective Observational Study

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MATERIALS AND METHODS

A prospective observational study comparing I.V ferric carboxymaltose and oraliron in antenatal anaemia in Department of obstetrics and gynaecology, Dhanalakshmi Srinivasan Medical College and Hospital during May 2022 to May 2023. Patients were divided into 2 groups **GROUP A: 50** number of pregnant women tolerateoral iron were continued with ferrous fumarate 100mg twice daily dosage and **GROUP B: 50** number of pregnant women intolarent to oral iron were given Ferric carboxy maltose infusion. Inclusion criteria: Pregnant women with gestational age between 20 to 34 weeks who have irondeficiency anaemia with Hb level < than 9gm/dl , serum.ferritin <30 ng/ml. Exclusion criteria: Haematological disease other than iron deficiency anaemia, hypersensitivity to iron, history of blood transfusion in this pregnancyLiver disease >34 weeks of gestational age

RESULT

Correction of anaemia before delivery is one of the method to prevent maternal mortality because of postpartumanaemia. The FCM group, Mean haemoglobin level increased from 8.176g/dl to 9.998 g/dl, 10.94 g/dl, 12.042 g/dl at 4 weeks, 6 weeks and 8 weeks respectively. In oral iron group mean haemoglobin level increased from 8.324 g/dl to 9.428 g/dl , 10.666 g/dl , 11.542 g/dl at 4 weeks , 6 weeks and 8 weeks respectively.

CONCLUSION

Treatment of antenatal iron deficiency anemia with ferric carboxy- maltose is a safe and efficacious alternative to oral iron therapy in the treatment of anemia in second and third trimester of pregnancy.

KEY WORDS

ferric carboxy- maltose (FCM), oral iron therapy, anemia, pregnancy.

INTRODUCTION

Iron deficiency and iron deficiency anaemia are global health issues. Anemia during pregnancy is associated with increased risk of preterm delivery , low birth weight and maternal complication.This study done to compare efficacy and outcome of IV ferric carboxy maltose and oral iron ferrous fumarate in the treatment of antenatal iron deficiency anemia.

AIM

To compare the efficacy and outcome of intravenous ferric carboxymaltose vs oraliron in pregnant women with anemia in gestational age between 20 to 34 weeks with Haemoglobin (Hb) level < 9 gm/ dl who are intolerant to oral iron.

MATERIALS AND METHODS

Hospital based prospective observational study comparing I.V FCM and oralIron in the Department of obstetrics and gynaecology, Dhanalakshmi Srinivasan Medical College and Hospital during May 2022 to May 2023. Patients were divided into 2 groups **GROUP A: 50** number of pregnant women with ferrous fumarate 100mg twice daily dosage and **GROUP B: 50** number of pregnant women were given Ferric carboxy maltose infusion.

Inclusion criteria

Pregnant women with gestational age between 20 to 34 weeks who have irondeficiency anaemia with Hb level < than 9gm/dl , serum.ferritin <30 ng/ml

Exclusion criteria

Haematological disease other than iron deficiency anaemia.

Hypersensitivity to iron

History of blood transfusion in this pregnancyLiver disease

>34 weeks of gestational age

OBSERVATION AND RESULT

Improvement in Mean HB after therapy in FCM group

Improvement in Mean HB after therapy in FCM group								
Variables		SD	Std. Error	95% CI for Mean		Minimum	Maximum	sig
Mean				Lower	Upper			
PRE HB	8.176	0.5923	0.0838	8.008	8.344	6.2	8.9	
4 WEEKS	9.998	0.51961	0.07348	9.8503	10.1457	8.1	10.9	<0.05
6 WEEKS	10.94	0.5704	0.0807	10.778	11.102	9.1	11.8	
8 WEEKS	12.042	0.7675	0.1085	11.824	12.26	10.8	13.8	

Table 1 shows that mean haemoglobin concentration improved from 8.176 g/dl to9.998 g/dl at 4 weeks , 10.94 g/dl at 6weeks and 12.042 g/dl at 8 weeks in FCM group. Which was statistically significant (p value <0.05).

Improvement in Mean HB after therapy s in ORAL IRON [OI]

Improvement in Mean HB after therapy s in ORAL IRON [OI]								
Vaiables		SD	Std. Error	95% CI for Mean		Minimum	Maximum	sig
	Mean			Lower	Upper			
PRE HB	8.324	0.434	0.0614	8.201	8.447	6.8	8.9	
4 WEEKS	9.428	0.58416	0.08261	9.262	9.594	8.1	10.6	<0.05
6 WEEKS	10.666	0.5081	0.0719	10.522	10.81	9.1	12	
8 WEEKS	11.542	0.7964	0.1126	11.316	11.768	10	13.9	

Table 2 shows that mean haemoglobin concentration in improved from 8.324 g/dl to 9.998 g/dl at 4 weeks, 10.666 g/dl at 6 weeks and 11.542 g/dl at 8 weeks in oral iron group which was statistically significant (p value <0.05)

Comparison of improvement in Mean HB pre-therapy and post-therapy in study groups

Comparison of improvement in Mean HB after therapy in study groups									
Vaiables	Group		SD	Std. Error	95% CI for Mean		Minimum	Maximum	sig
		Mean			Lower	Upper			
PRE HB	FCM	8.176	0.5923	0.0838	8.008	8.344	6.2	8.9	
	OI	8.324	0.434	0.0614	8.201	8.447	6.8	8.9	>0.05
4 WEEKS	FCM	9.998	0.51961	0.07348	9.8503	10.1457	8.1	10.9	
	OI	9.428	0.58416	0.08261	9.262	9.594	8.1	10.6	<0.01
6 WEEKS	FCM	10.94	0.5704	0.0807	10.778	11.102	9.1	11.8	
	OI	10.666	0.5081	0.0719	10.522	10.81	9.1	12	<0.05
8 WEEKS	FCM	12.042	0.7675	0.1085	11.824	12.26	10.8	13.8	
	OI	11.542	0.7964	0.1126	11.316	11.768	10	13.9	<0.05

Table 3 shows comparison of improvement in mean HB after therapy between FCM and oral iron group. In FCM group pretreament mean HB was 8.176 g/dl . In oral irongroup pretreatment mean HB was 8.324 g/dl .

DISCUSSION

Correction of anaemia before delivery is one of the method to prevent maternal mortality because of postpartum anaemia. It is also associated with maternal and perinatal morbidity. The rapid delivery option of large single dose of ferric carboxymaltose gives apromising treatment option for pregnant women with iron deficiency anaemia. These properties of ferric carboxy maltose improves the patients treatment compliance

In our study, in the FCM group, Mean haemoglobin level increased from 8.176g/dl to 9.998 g/dl,10.94 g/dl ,12.042 g/dl at 4 weeks ,6 weeks and 8 weeks respectively. In oral iron group mean haemoglobin level increased from 8.324 g/dl to 9.428 g/dl , 10.666 g/dl , 11.542 g/dl at 4 weeks , 6 weeks and 8 weeks respectively. Mean haemoglobin improvement was higher in the FCM group as compare to oral iron group during all periods after treatment which is statistically significant (p value <0.01 at 4 weeks, <0.05 at 6 weeks , <0.05 at 8 weeks)

CONCLUSION

In this study Intravenous ferric carboxymaltose was safe and well tolerated with better improvement in haemoglobin concentration than oral iron (ferrous fumarate) in treatment of iron deficiency anemia in second and third trimester of pregnancy. Ferric carboxymaltose had lesser incidence of post-partum hemorrhage, post natal anemia, preterm delivery, but it does not reach statistical significance. Therefore Treatment of antenatal iron deficiency anemia with ferric carboxy- maltose is a safe and efficacious alternative to oral iron therapy in the treatment of iron deficiency anemia in second and third trimester of pregnancy.

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