



IRON DEFICIENCY ANEMIA IN PREGNANCY : ORAL FERROUS SULPHATE THERAPY VERSUS INTRAVENOUS IRON SUCROSE

Gynaecology

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ABSTRACT

Introduction: Iron deficiency anemia in pregnancy is a commonest medical problem throughout the developing world with the burden of disease impacting in both mother and newborn. Anaemia affects nearly half of all the pregnant women in the world, these figures are 52% in the developing and 23% in the developed world. This study was conducted to find out IV iron sucrose or oral is better.

Materials and methods: This prospective study is conducted in Obstetrics & Gynaecology Department. Women are randomly assigned (100 women each) to receive either calculated dose of intravenous iron sucrose (Group B) or oral ferrous sulphate 200mg BD per day (Group A). Hemoglobin, hematocrit and mean corpuscular estimation is done before treatment and after 4wks of correction in both groups to note the improvement in values and monitored for adverse reactions.

Results: Statistically significant rise in hemoglobin, hematocrit and mean corpuscular levels are found at 4th week in IV group compared to oral group.

Conclusion: IV Iron sucrose better than oral iron.

KEYWORDS

iron sucrose, ferrous sulphate

INTRODUCTION:

Anemia is estimated to contribute to 20% of all maternal death and 9 times increase of perinatal mortality. Anemia results in increase number of preterm births, IUGR, PPH, failure of lactation and increased risk of infections in postpartum period¹. Therefore the key component of safe motherhood is eradication of anemia in pregnancy.

According to World Health Organization (WHO), oral iron programs have often failed to reduce frequency of iron-deficiency anaemia. High levels of iron- deficiency anaemia exist in pregnancy despite routine use of iron prophylaxis adopted by many centres in the developing world. The WHO technical working group on the prevention and the treatment of severe anaemia has documented that parenteral iron therapy produces a rapid and complete correction of iron deficiency, including replacement of iron stores producing a more rapid erythropoietic response than oral iron replacement.

METHODOLOGY

The study titled —Iron deficiency Anemia in Pregnancy: Intravenous iron sucrose an alternative to oral ferrous sulphate therapy] is conducted in the Department of Obstetrics and Gynaecology.

Inclusion criteria

1. Singleton pregnancy
2. 16 to 32 wks of gestation
3. Hb % 7 to 10.9g%
4. Willingness to enrollment to study

Exclusion criteria

1. Non iron deficient anemia
2. Hb% <7g%
3. Reactions to i.v iron sucrose
4. h/o blood transfusion in present pregnancy
5. h/o intake of iron in any form orally
6. High risk pregnancy

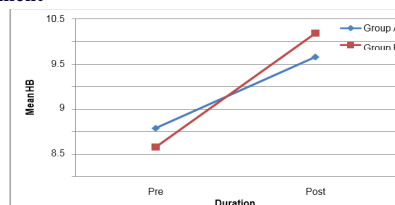
OBSERVATIONS AND RESULTS

This randomized trial is conducted in Obstetrics & Gynaecology Department. The aim of the study is to know the response of intravenous iron sucrose with that of oral ferrous sulphate in terms of safety, efficacy and compliance of intravenous iron sucrose over oral ferrous sulphate in the treatment of iron deficiency anaemia in pregnancy. All these women were randomly assigned (100 women each) to receive either calculated dose of intravenous iron sucrose (Group B) or oral ferrous sulphate 200mgBDperday (Group A).

Comparison Of Hemoglobin Percentage Pretreatment And Posttreatment

	GROUP	Mean	Std. Deviation	N
HBPRE	Group A	8.0800	.53504	100
	Group B	7.6570	.50598	100
	Total	7.8685	.56101	200
HBPOST	Group A	9.6620	.85183	100
	Group B	10.1873	1.43527	100
	Total	9.9247	1.20629	200

Comparison Of Hemoglobin Percentage Pretreatment Vs Posttreatment

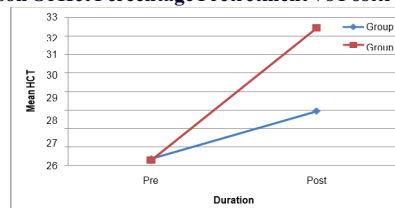


Shows mean haemoglobin 8.08g% pretreatment and 9.6g% posttreatment in group A and therefore a rise by 1.6g% in 4 weeks. The mean haemoglobin 7.65g% pretreatment and 10.18g% posttreatment in group B and therefore a rise by 2.6g% in 4 weeks. This is statistically significant.

Comparison Of Hct Percentage Pretreatment Vs Posttreatment

	GROUP	Mean	Std. Deviation	N
HCTPRE	Group A	25.3600	1.15049	100
	Group B	25.2710	2.71421	100
	Total	25.3155	2.07977	200
HCTPOST	Group A	27.9300	1.89766	100
	Group B	32.4400	1.95050	100
	Total	30.1850	2.96559	200

Comparison Of Hct Percentage Pretreatment Vs Posttreatment

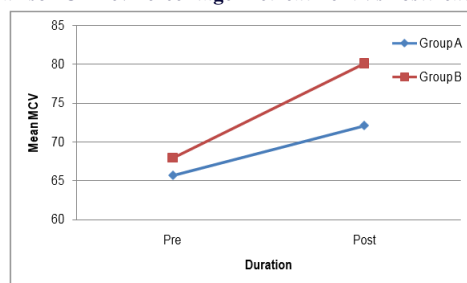


Shows mean hematocrit 25.36% pretreatment and 27.9% posttreatment in group A and therefore a rise by 2.5% in 4weeks. The mean hematocrit 25.27% pretreatment and 32.4% posttreatment in group B and therefore a rise by 7.2% in 4weeks. This is statistically significant.

COMPARISON OF MCV PERCENTAGE PRETREATMENT VS POSTTREATMENT

	GROUP	Mean	Std. Deviation	N
MCVPRE	Group A	65.6900	1.68592	100
	Group B	67.9500	6.12888	100
	Total	66.8200	4.62434	200
MCVPOST	Group A	72.0900	1.71208	100
	Group B	80.1400	4.75675	100
	Total	76.1150	5.38486	200

Comparison Of Mcv Percentage Pretreatment Vs Posttreatment

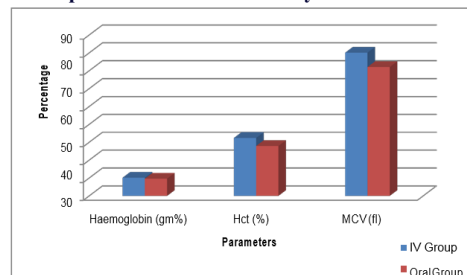


Shows mean MCV 65.69fl pretreatment and 72.09fl posttreatment in group A and therefore a rise by 6.4fl in 4weeks. The mean MCV 67.95fl pretreatment and 80.14fl posttreatment in group B and therefore a rise by 12fl in 4weeks. This is statistically significant.

Comparison Of Hemoglobin, Hct And Mcv Between Study And Control Groups At The End Of The Study

Parameters	IV Group	Oral Group	P
Haemoglobin (gm%)	10.18	9.66	0.0001
Hct (%)	32.44	27.93	
MCV (fl)	80.14	72.09	

Comparison Of Hemoglobin, Hct And Mcv Between Study And Control Groups At The End Of The Study



Shows a significant rise of 1g% haemoglobin , 4.7% hematocrit and 5.6fl MCV by 4 weeks posttreatment in intravenous group verses oral group which is statistically significant.

DISCUSSION

Anemia due to iron deficiency is the commonest malnutrition disorder seen throughout the world. High doses of oral iron frequently cause side effects, and noncompliance is common. Administration of oral iron supplementations is not sufficient enough in order to reverse anemia promptly, due to the limited absorption, the gastrointestinal symptoms and the poor compliance for long treatment of the patients.

Therefore, intravenous iron, has been considered as an alternative in the management of iron deficiency anemia. In our study, the mean baseline hemoglobin was 8.08 and 7.65g/dl in oral and IV group respectively, which is found to be statistically insignificant between the groups. Post treatment hemoglobin after 4 weeks showed a mean value of 9.6 gm/dl and 10.18gm/dl in oral and IV group respectively (p value <0.0001), which is statistically significant. The average rise of hemoglobin is 1.6gm/dl and 2.6 gm/dl in oral and IV group respectively (p value 0.0001), which is statistically significant. In the Aggarwal Rohina et al study, baseline hemoglobin levels is 5.94 and

6.27 g/dl and in the Al Momen et al, baseline haemoglobin is 7.6 and 7.5 g/dl are studied. In the Aggarwal et al study, average rise of hemoglobin is 4.32gm/dl and 5.03gm/dl and in the Al Momen et al , average rise of haemoglobin is 3.54g/dl and 5.3g/dl in oral and IV group respectively.

CONCLUSION

This study concluded that intravenous iron sucrose is safe, highly efficacious with better compliance for the treatment of iron deficiency anemia in pregnancy. Iron sucrose therapy is more effective in achieving the optimum results, an increase in hemoglobin concentration, mean corpuscular volume levels and an increase in hematocrit % . Therefore it is a suitable alternative to oral iron.

REFERENCES:

- 1) Al-Momen AK, al-Meshari A, al-Nuaim L, Saddique A, Abutalib Z, Khashogi T, et al. Intravenous iron sucrose complex in the treatment of iron deficiency anemia during pregnancy. Eur J Obstet Gynecol Reprod Biol 1996; 69: 121-4.
- 2) UNICEF\UNO\WHO GENEVA 2001. Iron deficiency anaemia, assessment, prevention and control.
- 3) Cutner A. Failed response to treat anaemia in pregnancy reasons & evaluation. J Obstet Gynecol 1999 (Suppl): 523-7.
- 4) Theresa OS. Iron status during pregnancy: setting the stage for mother and infant. Am J Cline Nutr 2005;81: 1218S-22S.
- 5) Scot BS, and George MR. Parental iron therapy option. Am J 2004;76:74-8.
- 6) Chandler G, Harchowal J, Macdougall IC. Intravenous iron sucrose: establishing a safe dose. Am J Kidn Dis 2001;38:988-91.
- 7) Mishra Vineet V , Evaluate iron sucrose and oral iron in management of IDA in pregnancy NJCM 2012; 93:415-16