VOLUME - 12, ISSUE - 12, DECEMBER - 2023 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper | Obstetrics & Gynaecology

ORAL IRON VERSUS INTRAVENOUS IRON THERAPY IN MODERATE IRON DEFICIENCY ANEMIA IN PREGNANCY

Dr Sanju Biswas Resident, Department of Obstetrics & Gynaecology, Pacific Medical College and Hospital, Udaipur

KEYWORDS :

INTRODUCTION

Pregnancy anemia is a significant public health issue in developing nations like India. Compared to developed countries (14%), where it is less prevalent, developing countries (51%) have a much higher prevalence. In contrast to developed countries, where only mild to moderate anemia is common, the prevalence of moderate anemia and severe anemia is quite high in developing countries. In India, moderate to severe anemia causes a proportionately high number of severe morbidities and 20–40% of maternal fatalities.

Dietary iron deficiency accounts for 90–95% of the causes of anemia in pregnancy, which is a condition that can be avoided. India was one of the first nations to implement a national anemia control program in 1970 (through oral IFA supplementation). But as of right now, we are still far from meeting our target for reducing anemia in pregnant women. In various studies, it has been found that, in cases of moderate anemia, injectable iron can raise Hb levels more effectively than oral IFA supplementation. For this reason, we want to start this study in our center to compare the effectiveness of oral iron therapy versus injectable iron therapy in treating moderate anemia during pregnancy.

AIM AND OBJECTIVES

To assess the impact of oral iron versus intravenous (IV) iron therapy on moderate iron deficiency anemia in pregnancy.

MATERIAL AND METHODS

This is a comparative prospective study was carried out over a period of one year. Anemic pregnant patients attending the antenatal outpatient department and emergency labour room of the department of obstetrics and gynecology, Pacific Medical College & Hospital, Udaipur fulfilling the inclusion criteria were selected for the study. An informed written consent was obtained from each study subject, after the nature of study was explained in their own understandable language. Detailed history was recorded, complete systemic and obstetric examination were carried out. Period of gestation was calculated according to last menstruation period (LMP) or first trimester obstetric ultrasonography, if patient is not sure of dates. Each case was recorded in proforma.

Inclusion criteria: Pregnant women with -

1. Appropriate consent.
2. Iron deficiency anemia with Hb values between 7.8-8.5 gm%
3. Gestational age 14-28 weeks.
4. Single viable fetus with no anomalies.

Exclusion criteria: Pregnant women with -

1. No consent.
2. Hb less than 7.8 gm% or more than 8.5 gm%.
3. Gestational age less than 14 weeks or more than 28 weeks.
4. Anemia due to causes other than iron deficiency.
5. History of blood transfusion and erythropoietin treatment in present pregnancy.
6. Other medical or surgical disorders like CKD, bleeding diathesis, hypothyroidism, diabetes, hemorrhoids, IBS complicating pregnancy or h/o haematological diseases.
7. Multiple pregnancy.
8. Specific allergy to iron preparations.

Group A: 35 anemic pregnant women were given inj iron Sucrose 200 mg intravenously twice weekly. They were advised to take 500 μgm folic acid orally twice daily, govt supply, NHM.

Group B: 35 anemic pregnant women were given tab oral iron folic acid (60 mg of elemental iron with 500 μgm of folic acid) twice daily, govt supply, NHM.

Investigations: Following investigation were done –

1. To diagnose iron deficiency anemia in pregnancy.

- Haemoglobin,
- Peripheral Blood Smear
- PCV
- MCV, MCH, MCHC, RDW
- Serum iron, serum ferritin, TIBC
- Reticulocyte count
- Hb typing

2. To determine the cause of iron deficiency anemia in pregnancy if and when necessary

- C-Reactive protein
- BUN/ Serum creatinine – renal disease
- LFT- hepatic disease.
- Urine examination – RBC, casts
- Stool examination – occult blood, ova
- X-ray chest – pulmonary TB
- USG whole abdomen – cirrhosis, splenomegaly.
- Endoscopy - bleeding from a hiatus hernia, an ulcer or the stomach
- Colonoscopy - lower intestinal sources of bleeding
- Bone marrow examination – refractory anemia

3. Other investigations in pregnancy

- Blood group and Rh typing
- Bleeding time, clotting time
- TSH, RBS
- VDRL, PPTCT, HbS Ag, Anti HCV

RESULTS

Comparison of rise of mean haemoglobin level in both groups VisitsIV Group (gm/dl)Oral Group (gm/dl)p valueBaseline 7.96 ±0.168.01±0.180.084After 4 weeks 9.79 ±0.729.21± 0.49<0.001*% Increase 22.9914.99-**p value <0.001** <0.001**-* Unpaired t-test; the p-value is significant at 5% level of significance **Paired t-test; the p-value is significant at 5% level of significance

Comparison of haemoglobin during different visits in both the groups. It was observed that mean baseline haemoglobin were 7.96±0.16gm/dl and 8.01±0.18 gm/dl in IV and oral group respectively. Post treatment Hb after 4 weeks showed mean value 9.79 ± 0.72 gm/dl in IV group and 9.21 ± 0.49 gm/dl in oral group ($p<0.001$) which was statistically significant.

Comparison of rise of serum ferritin level in both the groups Visits IV Group (ugm/l)Oral Group (ugm/l)*p valueBaseline 16.62 ±3.9915.32 ±4.070.058After 4 weeks 31.20 ±3.0525.01 ±3.77<0.001*% Increase 87.7263.25-**p value <0.001** <0.001**-*Unpaired t-test; the p-value is significant at 5% level of significance **Paired t-test; the p-value is significant at 5% level of significance

Serum ferritin level at first visit that is baseline value and the rise in serum ferritin level in subsequent visits. The mean baseline serum ferritin level was 16.62 ± 3.99 μgm/l and 15.32± 4.07 μgm/l in IV and oral groups respectively. Post treatment ferritin after 4 weeks in IV and oral groups showed a mean value of 31.20± 3.05 μgm/l and 25.01 ± 3.77 μgm/l respectively (p<0.001) which was statistically significant.

Distribution of patients according to adverse reactionsSide Effect IV GroupOral Group*P valueNausea vomiting 250.441Epigastric pain 130.619Constipation 140.365Staining 300.244Thrombophlebitis 00-Rashes 00-Myalgia 111.0Fever 00-Hypotension 00-*P value calculated using Fisher's exact test

There were no major adverse effects. In oral group 5 patients had nausea and vomiting, 3 patients had epigastric pain, 4 patients had constipation and 1 patient had myalgia. In IV group 2 patients had nausea vomiting, 1 patient had epigastric pain,1 patient had constipation, 3 patients had staining and 1 patient had myalgia.

DISCUSSION

In the present study mean rise of hemoglobin after 4 weeks were 1.83 gm/dl in IV group (22.99% increase from baseline) and 1.2gm/dl in oral group (14.99% increase from baseline).

Suganya G et al1 found mean rise of hemoglobin after 4 weeks as 2.43±0.20gm/dl in IV group and 0.91±0.20 gm/dl in oral group.

Neelima Agarwal et al2 found mean rise of hemoglobin after 4 weeks as 1.26±0.58 gm/dl in IV group and 0.78 ±0.37 gm/dl in oral group.

Manisha Parmar et al3 found mean rise of hemoglobin after 4 weeks as 2.17±0.45 gm/dl having moderate anaemia (Hb 7-9 gm%) and 2.73 ± 0.51 gm/dl with severe anaemia (Hb <7 gm%) with IV iron sucrose.

Alka Kriplani et al4 found mean rise of haemoglobin as 2.27 gm/dl after 4 weeks with IV iron sucrose. Alka Kriplani et al used 1000 mg for replenishment of iron instead of 500mg as used in previous studies.

In the present study mean rise of ferritin after 4 weeks were 14.58 μgm/l in IV group (87.72% increase from baseline) and 9.69 μgm/l in oral group (63.25% increase from baseline). Neelima Agarwal et al2 found mean rise of ferritin after 4 weeks as 12.00 ± 11.77 μgm/l in IV group and 6.50 ± 9.53 μgm/l in oral group. Aasif Abdullah et al5 found mean rise of ferritin after 4 weeks as 14.4 μgm/l in IV group and 5.5 μgm/l in oral group. P K Kochhar et al1 also found that IV iron increases mean ferritin level as 85.9 μgm/l and 61.1 μgm/l in oral group after day 30.

In the present study no major adverse effects were observed in both groups, no dropout cases were seen from both the groups and compliance were good. Suganya G et al6, Neelima Agarwal et al2, G D Abhilashini et al7, Alka Kriplani et al8 found no major adverse effect in their respective studies.

CONCLUSION

For the treatment of moderate anaemia in pregnancy, it has been found that intravenous iron sucrose is safe, highly effective, practical, and also has improved compliance. It induces a quick increase in haemoglobin and hematocrit level, as well as a quicker replenishment of iron stores. It is found to be highly effective than oral iron in this study and may be the only way to eliminate the need for blood transfusions in moderately anaemic women in later part of pregnancy. Patients who do not respond to oral iron therapy needs to be investigated properly and iv iron therapy can be offered for treatment.

REFERENCES

1. Suganya G, Vimala D. A comparative study of oral iron and intravenous iron in iron deficient antenatal mothers. Int J Reprod Contracept Obstet Gynecol. 2018; 7(5): 1848 - 51.
2. Agarwal N, Sharma A, Gupta M, Agrawal A. Efficacy and safety of intravenous iron sucrose versus oral iron in pregnant women with mild to moderate iron deficiency anaemia. Academia Edu. 2016; 2(2): 109-11.
3. Parmar M, Hemali V, Shah P, Thakar R, Deliwala K. Evaluation of effectiveness of intravenous iron sucrose in antenatal patients of iron deficiency anemia. Int J Med Sci Public Heal. 2014; 3(2):173.
4. Kriplani A, Mahey R, Dash BB, Kulshreshta V, Agarwal N, Bhatla N. Intravenous iron sucrose therapy for moderate to severe anaemia in pregnancy. Indian J Med Res. 2013; 138: 78-82.
5. Abdullah A, Qadir S, Haq A, Wagay MI, Masarat S. Intravenous Iron Sucrose Vs Oral Iron Therapy in Treatment of Pregnancy With Moderate Anaemia : a Prospective Study in a Tertiary Care Centre. International Journal of Basic and Applied Medical Sciences. 2014; 4(2): 78-83.
6. Kochhar PK, Kaundal A, Ghosh P. Intravenous iron sucrose versus oral iron in treatment of iron deficiency anemia in pregnancy: a randomized clinical trial. Journal of Obstetrics and Gynaecology Research. 2013 Feb; 39(2): 504-10.
7. Abhilashini GD, Sagili H, Rani R. Intravenous iron sucrose and oral iron for the treatment of iron deficiency Anaemia in pregnancy. J Clin Diagnostic Res. 2014; 8(5): 4-7.