

Effect of Oral supplementation with Iron Sulphate (with Liposomal Vitamin C) in pregnant women to prevent Postpartum hemorrhage

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Abstract

Objective: to evaluate the impact of Oral Supplementation with iron sulphate (with liposomal vitamin C) in pregnant women to treat iron deficiency anemia.

Methods: This was an observational retrospective study. Women who received oral supplementation with oral iron sulphate (with liposomal vitamin C) as treatment for iron deficiency anemia were compared with women who did not. Inclusion criteria were singleton gestations with microcytic mild iron deficiency anemia. Mild anemia was defined as Hgb level between 9.00 and 10.99 g/dL. The primary outcome of the study was the incidence of anemia after treatment. The secondary outcomes were rise in serum ferritin, rise in Hgb level and maternal tolerability.

Results: 200 women, 100 for each group, were included in the study. Women who received the intervention had a significantly lower overall incidence of anemia after 2 months, and at post-partum follow-up visit. Moreover, rise in Hgb level and serum ferritin were significantly higher in the intervention.

Conclusion: Our retrospective cohort of singleton gestations with mild anemia in pregnancy showed that oral supplementation with iron sulphate (with liposomal vitamin C) as treatment for iron deficiency anemia was a safe and efficacious treatment to reduce the recurrence of anemia.

Keywords: Supplementation; Iron; Anemia; Pregnancy

Introduction

In pregnant women anemia is defined as hemoglobin (Hgb) level below 11 g/dL in the first trimester, or below 10.5 g/dL in the second trimester, or below 11 g/dL in the third trimester. Anemia may be acquired, such as deficiency anemia (e.g. iron, vitamin B12, folate), hemorrhagic anemia, anemia of chronic disease, aplastic anemia, or inherited, such as thalassemia, sickle cell anemia, or hemoglobinopathies other than sickle cell anemia. Iron deficiency anemia is extremely common during pregnancy. It is an acquired anemia characterized by increased red blood cell production with mean corpuscular volume (MCV) less than 80 fL (microcytic anemia) [1]. A national study of anemia in pregnancy found a prevalence of 22 per 1,000 pregnant women in the United States [2]. Oral iron supplementation is the gold standard approach for iron deficiency anemia in pregnancy. Different iron supplements are available on the market [3]. They include ferrous fumarate, ferrous sulfate, ferrous gluconate, iron dextran, ferric gluconate, and iron sucrose [4]. Among others, sucrosomial Ferric Pyrophosphate has been associated with better tolerability and effectiveness compared to oral ferrous sulfate in several studies [5-6]. Moreover, both supplemental and dietary sources of vitamin C can help enhance the availability and absorption of oral iron supplementation [7].

Objective

The aim of this study was to evaluate the impact of Oral Supplementation with oral iron sulphate (with liposomal vitamin C) in pregnant women to treat iron deficiency anemia.

Materials and Methods

This was an observational retrospective study. Data were collected in a dedicated encrypted database and anonymized. In this study, women who received oral supplementation with iron sulphate (with liposomal vitamin C) as treatment for iron deficiency mild anemia, were compared with women who did not. Intervention group included

30mg mg of iron sulphate along with liposomal vitamin C once a day starting from the diagnosis of mild until delivery. Only those who started the supplementation <28 weeks of gestations were included in the study. Those who developed anemia >28 weeks were excluded. Control group included women with mild anemia who did not receive any iron therapy. Inclusion criteria were singleton gestations with microcytic mild iron deficiency anemia. Mild anemia was defined as Hgb level between 9.00 and 10.99 g/dL. Exclusion criteria were multiple gestations, and moderate or severe anemia defined as Hgb level below 9.00 g/dL. The primary outcome of the study was the incidence of anemia after treatment. The secondary outcomes were rise in serum ferritin, rise in Hgb level and maternal tolerability. Primary and secondary outcomes were compared after two months of daily treatment, and 2 months postpartum follow-up. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) v. 19.0 (IBM Inc., Armonk, NY, USA). Data were shown as mean± standard deviation or as number (percentage). Dichotomous data were compared using the chi-square. Comparisons between groups were performed with the use of the T-test to test group means by assuming equal within-group variances. A sample size of 100 women for each group was planned.

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Table 1: Primary and secondary outcomes.

	Intervention group N = 88	Control group N = 100	P-value
Anemia			
2m follow-up	13	38	<0.01
Anemia			
2m post-partum	7	21	<0.01
Hgb level	+ 1.9±0.7	+ 0.4±1.1	0.03
Ferritin level	19±4.8	6±3.7	0.04

Boldface data, statistically significant

Results

200 women, 100 for each group were included in the study. 12 were lost to follow-up and excluded in the primary analyses. Therefore, 188 participants were available for the final analysis. The two groups were similar in terms of maternal demographics: both had anemia at the similar gestational and with similar phenotype. Maternal age and smoking rate were also similar. Women who received the intervention had a significantly lower overall incidence of anemia after 2 months, and at post-partum follow-up visit. Moreover, rise in Hgb level and serum ferritin were significantly higher in the intervention. Maternal tolerability was adequate in the intervention group [Table 1].

Discussion

Our retrospective cohort of singleton gestations with mild anemia in pregnancy showed that oral supplementation with iron sulphate (with liposomal vitamin C) as treatment for iron deficiency mild anemia was a safe and efficacy treatment to reduce the recurrence of anemia. One of the strengths of our study is the inclusion of a specific population, i.e. singleton gestations with iron deficiency mild anemia. This is the subgroup of women at increased risk for anemia and postpartum hemorrhage. This may be the first study in the literature evaluating the

efficacy of oral supplementation with oral iron sulphate with liposomal vitamin C in pregnant women. No similar publications were found by a systematic review: searches were performed in MEDLINE, OVID, Scopus, Sciencedirect.com, ClinicalTrials.gov and EMBASE with the use of a combination of keywords related to “liposomal iron and pregnancy from inception of each database to August 2022.

Conclusions

In summary, oral supplementation with iron sulphate (with liposomal vitamin C) as treatment for iron deficiency mild anemia is a safe and efficacy treatment to reduce the recurrence of anemia. Large well-designed placebo-controlled randomized trials are needed to confirm our findings.

References

1. (2008) American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 95: anemia in pregnancy. *Obstet Gynecol* 112: 201-207.
2. Adebisi OY, Strayhorn G (2005) Anemia in pregnancy and race in the United States: blacks at risk. *Fam Med* 37: 655-662.
3. Moe S, Grill AK, Allan GM (2019) Newer iron supplements for anemia. *Can Fam Physician* 65: 556.
4. Dede A, Uygur D, Yilmaz B, Mungan T, Uğur M (2005) Intravenous iron sucrose complex vs. oral ferrous sulfate for postpartum iron deficiency anemia. *Int J Gynaecol Obstet* 90: 238-239.
5. El Khouly NI (2017) Comparison of intravenous ferrous sucrose and oral ferrous sulphate in treatment of postpartum iron deficiency anemia. *J Matern Fetal Neonatal Med* 2017 30: 967-971.
6. Briguglio M, Hrelia S, Malaguti M, De Vecchi E, Lombardi G, et al. (2020) Oral Supplementation with Sucrosomial Ferric Pyrophosphate Plus L-Ascorbic Acid to Ameliorate the Martial Status: A Randomized Controlled Trial. *Nutrients* 12: 386.
7. Li N, Zhao G, Wu W, Zhang M, Liu W, et al. (2020) The Efficacy and Safety of Vitamin C for Iron Supplementation in Adult Patients with Iron Deficiency Anemia: A Randomized Clinical Trial. *JAMA Netw Open* 3: e2023644.