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Comparative Study of Postpartum Correction of Anaemia by Iron Sucrose vs Blood Transfusion

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***Abstract*---**Aim: The aim of the study is to know whether intravenous iron sucrose can be a better alternative in terms of safety and efficacy over blood transfusion in the treatment of anaemia in post-partum. Materials and methods: This are prospective study is conducted in obstetrics and gynaecology Department. All these women are randomly assigned (50 women total, 25 in each group) to receive either 2 doses of intravenous iron sucrose (Group A) or blood transfusion (Group B). Haemoglobin, hemocrit, mean corpuscular volume and serum ferritin estimation is done before treatment and

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after 1 wk. of correction in both groups to note the improvement in values and monitored for adverse reactions. Results: There is statically significant rise in haemoglobin, hemocrit, mean corpuscular volume, and serum ferritin levels when compared to baseline after 1 week of treatment in both groups. Statistically insignificant rise in mean Hb, Hct was observed when iron sucrose group is compared to blood transfusion group. Conclusion: Intravenous iron sucrose is safe, efficacious and cost-effective treatment for post-partum anaemia. It may be an attractive to blood transfusion which may be associated with minor and major reactions.

***Keywords*---**anaemia, blood transfusion, iron deficiency, iron sucrose, mean corpuscular volume, serum ferritin levels.

Introduction

WHO defines anaemia as haemoglobin less than 11 g% during pregnancy and less than 10g% in puerperium. Anaemia affects nearly half of all pregnant women; these figures are 52% in the developing world and 23% in the developed world. The high prevalence of iron deficiency anaemia among the and a cause of considerable maternal women during pregnancy is of concern morbidity and mortality (Tandon et al., 2018; Lauwers, 2007). Post-partum anaemia complicates 10% of deliveries. It is closely related to presence of anaemia in pregnancy prior to delivery which inevitably will be aggravated after delivery due to obligatory and sometimes unforeseen blood losses (Milman, 2011).

The prevalence of iron deficiency anaemia during third trimester is markedly lower in women who have taken iron supplements during pregnancy compared to non-supplemented women. so adequate prevention of iron deficiency anaemia during pregnancy reduces the prevalence of post-partum animalcule cardiovascular strain and dyspnoea. More Severe anaemia can commonly it causes tiredness, headache and dizziness. This can be debilitating especially when caring for the new-born. Women may also have an increased risk of postpartum depression

Therefore, it is very important to manage puerperal anaemia before it may lead to fatal consequences. Apart from maintaining balanced diet, treatment includes supplementation of iron by oral or intramuscular or intravenous routes and blood transfusion. Blood transfusion in the postpartum period is not uncommon ranging from 2 to 10%. It is more common after caesarean section than vaginal delivery. The transfusion trigger is clinician dependent and varies between institutions (Thurn et al., 2019).

A significant proportion of transfusions are thought to be given inappropriately Blood transfusion may be necessary, but it is not without risk. Recipients may develop allogenic reactions, and more rarely, transfusion transmitted infections, as well as suffering immunological sequels such as red cell alloimmunisation. Additionally, there are the problems of incompatible transfusions, availability and rising costs. Unfortunately, information from randomised clinical trials to inform

best practice is largely unavailable in the discipline of blood transfusion. Therefore, blood transfusion should be given only when absolutely necessary.

Parenteral iron has been traditionally used in women intolerant to oral iron. More recently, it has been shown to achieve a faster correction of haemoglobin levels and iron stores Previous preparations, namely iron dextran had a poor reputation of anaphylactoid reactions. However, iron sucrose has been safely administered in cases where previous intolerance to iron dextran has been encountered (Cançado & Muñoz, 2011). Iron sucrose has been used in a series of 500 patients with not a single reported anaphylactic reaction. It has an excellent safety record compared to other intravenous iron preparations like iron dextran, iron gluconate as well as blood transfusion. Iron deficiency anaemia in pregnancy and postpartum needs acute corrective measures because of its related considerable morbidity and mortality. The objective of this study is to compare the safety and efficacy of blood transfusion versus iron sucrose for correction of post-partum anaemia where Safety is gap between the therapeutic and the adverse effect in dose response curve. Efficacy is maximum response that can be elicited. Our aim is to compare the efficacy and safety of intravenous iron sucrose with blood transfusion in post partum women with iron deficiency anaemia.

Materials and Methods

This prospective randomized controlled study was undertaken at MNR Medical College and Hospital, Sangareddy in Department of Obstetrics and Gynaecology from December 2016 to MAY 2018 (18 months). 50 symptomatic anaemic women were recruited from postnatal ward with in 48 hours of delivery.

Inclusion criteria

Anaemia detected in post-partum by Pallor, fatigue, dizziness, shortness of breath etc. with lab investigations Hb <9gm%, MCV <78 fi and Hematocrit<28%.

Exclusion criteria

Intolerance to iron, hemodynamic instability, asthma, cardiac and hepatorenal disease, anaemia from causes other than iron deficiency, women with post-partum haemorrhage**,** more severe symptoms namely fainting and evidence of cardiovascular strain. Prospective randomized controlled study. 50 patients were randomly assigned into two groups either group A or group B. Informed and written consent was taken pror to the procedure and the type of the procedure, possible complications associated with it were explained to the patient. Institutional clearance was obtained (on 20/11/2016 -IEC-16114010047D)

Blood samples of the patient were sent to the laboratory for finding out haemoglobin levels, haematocrit, MCV before administration of iron sucrose or blood. Iron deficiency anaemia was diagnosed depending on lab reports and peripheral smear. Then the patients were assigned to two groups (25 in each group) randomly based on patients' choice, affordability and availability.

Group A: Received a total dose of 400mg of intravenous iron sucrose and Group B: Received blood transfusion (1-3 units). In both the groups the aim is to raise the haemoglobin to target value of 10 gm%. The assigned treatment was started 24-48 hours after delivery in the post-natal ward. intravenous iron (Venofer) was given in two divided doses 200mg on day 1 and 200 mg on day 3. Venofer was diluted in 100 ml of normal saline and given over half an hour. Pulse and Blood pressure were checked before, during and after each infusion. Facilities for cardiopulmonary resuscitation were available in the ward.

In group B (25 women), blood transfusion was carried out in the post-natal ward. Compatible and cross matched packed RBC's were used. 18 women received 2 units, 4 women received 3 units and 3 women received 1 unit of blood transfusion. On average, women received 2.04 units of blood (range 1-3). Each unit was given over three hours. Blood pressure, pulse and temperature were measured half hourly during the transfusion. Reactions if any were noted. Oral iron intake was prohibited in both treatment groups throughout the stud period. Follow up of the patient was done at 1 week after treatment and the parameters were assessed as symptomatic improvement, Hb%, Hematocrit, MCV, Serum ferritin levels. All those women with known treatable causes like parasites and haemorrhoids are treated before enrolling them into study.

The information collected regarding all the selected cases were recorded in a Master Chart. Data analysis was done with the help of computer using Excel. Using this software, frequencies, percentages, means, independent ttest, chi-square χ^2 and 'p' values were calculated. A 'value less than 0.05 is taken to denote significant relationship.

Results

Results are compiled and tabulated according to data obtained with the help of stastical analysis. The total number of patients studied was 50. Group A consists of 25 and were given iron sucrose (each 400 mg) and group B consists of 25 and were given blood transfusion (ranging from 1-4 , on an average each received 2 units of blood).

Table 1
Demographic distribution of present study

Age in years	Group A		Group-B		Total	
16-20	2	8%	1	4%	3	6%
21-25	14	56%	15	60%	29	58%
26-30	7	28%	6	24%	13	26%
31-35	2	8%	3	12%	5	10%
Total	25	100%	25	100%	50	100%
Parity						
Primipara	9	36%	6	24%	15	30%
Multipara	16	64%	19	76%	35	70%
Socioeconomic						
Class 111	5	20%	8	32%	13	25%
Class 1V	20	80%	17	68%	37	74%

Mode of delivery						
Vaginal delivery	7	28%	5	20%	12	24%
C-section	18	72%	20	80%	38	76%

Mean age in group A is 24.76 and in group B is 24.56 which is statically insignificant . No patients from either group discontinued the study. 9(36%). Patients in group A and 6(24%) patients in group B are primipara out of 25 patients in each group and remaining are multigravidas. 37(74%) out of 50 women in both groups belonged to class IV socioeconomic class and 13(26%) belonged to class 111 socioeconomic class. 7(28%) cases in group A and 5(20%) cases in group B had vaginal delivery and remaining patients had C-section. (Table-1)

Table 2
Symptoms in patients studied

Symptoms	Group A		Group-B		Total	
Generalised weakness	24	96%	23	92%	47	94%
Generalised weakness + shortness of breath	1	4%	2	8%	3	6%
Pallor	25	100%	23	92%	48	96%
Pallor + koilonychia	0	0	2	8%	2	4%

Generalized weakness in 24(96%) patients in group A and 23 (92%) patients in group B and remaining complained of shortness of breath along with generalized weakness. 25(100%) patients in group A and 23 (92%) patients in group B has only pallor which is subjective observation and is insignificant. (Table-2)

Table 3
Distribution of cases according to symptoms relief

Symptoms relief	Group A		Group-B		Total	
	20/25	80%/100%	22/25	88%/100%	42/50	84%/100%

Among 25 patients in group A 20(80%) experienced improvement of symptoms after treatment, whereas in group B 22(88%) experienced improvement of symptoms. (Table-3)

Table 4
Distribution of cases according to adverse reactions

Adverse effects	Group A		Group-B		Total	
None	24	96%	20	80%	44	88%
Nausea/Vomiting	1	4%	2	8%	3	6%
Fever with chills	0	0%	2	8%	3	6%
Rash /pruritis	0	0%	1	4%	1	4%
Hypotension	0	0%	0	0%	0	0%
Tachycardia	0	0%	0	0%	0	0%

Shortness of breath	0	0%	0	0%	0	0%
Mixed symptoms	0	0%	0	0%	0	0%
Total	25	100%	25	100%	50	100%

1(4%) patient in group A and 5(20%) patients in group B out of 25 patients in each group had minor adverse reactions. None of them discontinued the treatment due to adverse effects. Women, who developed mild side effects while receiving iron sucrose and blood transfusion were given injection Avil and remaining dose of iron sucrose and remaining quantity of blood was transfused. There were no severe side effects as to completely abandon the iron sucrose or blood transfusion. (Table-4)

Table 5
Comparison of haemoglobin percentage pre-treatment vs post treatment

Title	Group A Iron sucrose	Group-B Blood transfusion	P value
Pre-treatment mean Hb	8.04 gm%	7.82 gm%	0.0633
Post treatment mean Hb	10.26 gm%	10.18 gm%	0.1077
Change of Hb	2.22 gm%	2.36 gm%	0.158
P-Value	<0.0001	<0.0001	

Mean haemoglobin in group A and group-B were 8.04g % and 7.82 g% and post treatment mean haemoglobin in group A and group B after 1 week of treatment were 10.26g% and 10.18g% respectively. The average rise of Hb in group A and group B were 2.22g% and 2.36g% respectively. P value was 0.001 in both groups. This indicates statically significant improvement in mean haemoglobin after treatment in both groups. Improvement in mean Hb insignificant when iron sucrose group is compared to blood transfusion group. (Table-5)

Table 6
Comparison of haematocrit percentage pre-treatment Vs Post treatment

	Group A Iron sucrose	Group-B Blood transfusion	P value
Pre-treatment mean haematocrit	26.2 %	25.8%	0.34
Post treatment mean haematocrit	33.4%	33.72%	0.48
Change of haematocrit	7.2%	7.88%	0.108
P value	<0.0001	<0.0001	

Pre-treatment mean haematocrit in group A and group B were 28.2% and 25.8% respectively. Post treatment mean hematocrit after 1 week of treatment in groups A was 33.4% with an average rise of 7.2% and in groups B it was 33.72% with an average rise of 7.88% p value <0.0001 in both groups. This is statically significant. Improvement in mean Hct was statically insignificant when iron sucrose group is compared to blood transfusion group. (Table-6)

Table 7
Comparison of MCV percentage pre-treatment vs post treatment

	Group A Iron sucrose	Group-B Blood transfusion	P value
Pre-treatment mean MCV	70.18 fl	69.21 fl	0.4088
Post treatment mean MCV	82.5 fl	82 fl	0.2486
Change of MCV	12.4 fl	12.8 fl	0.5802
P value	<0.0001	<0.0001	

Pre-treatment mean MCV in group A and group B were 70.1 fl and 69.2 fl respectively. Post treatment mean MCV after 1 week of treatment were 82.5 and 82 fl with an average rise of 12.4 fl and 12.8 fl in group A and group B respectively . P Value <0.0001 in both groups. This shows there was statically significant improvement in MCV after treatment in both groups. Improvement in mean MCV was statically insignificant when iron sucrose group is compared to blood transfusion group. (Table-7)

Table 8
Comparison of serum ferritin percentage pre-treatment vs post treatment

Title	Group A Iron sucrose	Group-B Blood transfusion	P value
Pre-treatment mean ferritin levels	9.2 ng/mL	9.128 ng/mL	<0.0001
Post treatment mean ferritin levels	26.8 ng/mL	18.6 ng/mL	<0.0001
Change of ferritin levels	17.176 ng/mL	9.472	<0.0001
P value	<0.0001	<0.0001	

Pre-treatment mean ferritin levels in group A and group B were 9.224 and 9.128ng/mL and respectively. Post treatment mean ferritin levels after 1 week of treatment were 26.8 and 18.6 ng/mL with an average rise of 17.176 and 9.47 ng/mL in group A and group B respectively . P Value <0.0001 in both groups. This shows there was statically significant improvement in MCV after treatment in both groups. Improvement in mean Hb , mean Hct and mean MCV was statically insignificant when iron sucrose group is compared to blood transfusion group. This indicate both groups are equally effective in improvement of haematological parameters -Hb, hemocrit and MCV. Improvement in mean serum ferritin levels was statically significant in both the groups. This indicates that iron sucrose is more effective than blood transfusion in replenishment of iron stores. (Table-8)

Discussion

Iron deficiency anaemia in pregnancy and puerperium is a major cause of maternal morbidity and mortality in India. Oral iron, intravenous iron, and blood transfusion have been used in post-partum iron deficiency anaemia. The traditional treatments, i.e., oral iron therapy and blood transfusion, involve significant drawbacks. 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 anaemia promptly, due to limited absorption, gastrointestinal symptoms and the poor compliance for long treatment of the patients. As far as blood transfusions are concerned, because of the risk of infection (bacterial, viral, prions) and immunomodulation associated with allergenic blood products, especially in this young and otherwise healthy population, transfusions are used only in the most severe cases and particularly in life threatening situations. Therefore, intravenous iron, has been considered as an alternative in the management of iron deficiency anaemia (Jimenez et al., 2015).

This randomized trial is conducted in Obstetrics & Gynaecology Department . The aim of the study was to show that intravenous iron sucrose can be an effective alternative to blood transfusion in treating postpartum anaemia. The distribution of patients as per Age, Parity and Socioeconomic status were equal in 2 groups, so that the results can be predicted with accuracy.

In our–study 6% (3/50) of the patients were in the age group of 16 - 20yrs. 58% (29/50) of the patients were in the age group of 21 - 25 yrs. 26% (13/50) of the patients were in the age group of 26 - 30yrs and 10% (5/50) of the patients were in the age group of 30-35 years. Mean age of the patients in group A is 24.76 and in B is 24.56. Mean age of the patients in authors study Khamaiseh K et al were 30.72 and 31.2 in iron sucrose and blood transfusion group (Khamaiseh et al., 2011).

In present study 70% (35/50) of the patients were multiparous women and 30% (15/50) were primipara. Majority were in multipara group. This is explained by high prevalence of iron deficiency anaemia in adult non-pregnant women. When these anaemic women become pregnant their anaemia will be aggravated by increased need of iron during pregnancy, which in turn may lead to post-partum anaemia due to unforeseen blood loss at the time of delivery. so, it is important to screen iron deficiency anaemia in all nonpregnant child bearing age group women as recommended by CDC (Milman, 2012).

In our study 74% (37) of women belonged to class IV socio economic status and 26% (13) belonged to class III socioeconomic status. Majority were in low socio-economic group. In our study out of 50 symptomatic postpartum anaemic women, 94% (47) presented with generalized weakness, 6% (3) presented with generalized weakness and shortness of breath.

Among 50 patients studied in our group 96% (48) of women were showing presence of only pallor and 4% (2) were showing pallor and koilonychia on general physical examination. Authors study has not commented as the parameter is more subjective. In our study out of 50 patients (100%) who presented with anaemia 76% (38) had caesarean section.

Most cases (80%) of anaemia in both iron sucrose and blood transfusion section in authors study Khamaiseh et al. (2011). The groups followed caesarean possible explanation for this is, there is excessive amount of blood loss during caesarean section (1000 ml) compared to normal vaginal delivery (<500 ml).Preoperative anaemia, blood loss during surgery may lead to postpartum anaemia.

In our study 22 patients (100%) were experienced symptomatic well-being in blood transfusion group, when compared to intravenous group in which 20 cases Were experienced symptomatic well-being. In those cases where symptoms persisted, a repeat course of treatment was performed. In authors study Khamaiseh et al. (2011), symptoms relief occurred in 28 Cases out of 45 in iron sucrose group and 29 cases out of 45 in blood transfusion group.

In our-study, haemoglobin level was measured before treatment and again after 1-week post therapy assessment was done. Mean baseline haemoglobin in group A and group B was 8.04gm% and 7.82gm%, respectively, which is found to be statistically insignificant between the groups. Post therapy haemoglobin after 1 week showed a mean Hb value of 10.26 gm% and 10.18 gm% in iron sucrose group and blood transfusion group respectively. An average rise in Hb was 2.22gm% and 2.36gm% in group A and group B. P value <0.0001 (pre-treatment vs post treatment) in both groups which was statistically significant, and target Hb was achieved in 100% of women in group A and group B. The significant rise in haemoglobin level(2.2gm%) in one week after iv iron sucrose is more than expected. this could be explained by the fact that haemodilution, a particular feature of pregnancy resolves after delivery and causes a higher than expected haemoglobin level. p value for change in Hb is 0.1584 (iron sucrose vs blood transfusion) which is statistically insignificant. This signifies both ion sucrose and blood transfusion are equally effective in improvement of mean Hb.

According to Authors study by Khamaiseh et al. (2011), a prospective comparative study included a total number of 90 postnatal women. Patients were assigned to two groups. Group I received iron sucrose and Group B received blood transfusion. Mean haemoglobin before therapy in group I and group B was 7.9 gm% and 7.7 gm% respectively, post therapy Hb after 1 week showed mean Hb of 10.1 gm% and 10.05 gm% with an average rise of 2.15 gm% in group ! and 2.35 gm% in group B. p value <0.05 (pre-treatment vs post treatment) which was statistically significant. Our study was comparable with above mentioned study.

In another study Patange & Sheth (2014), iron sucrose versus oral iron in post-partum anaemia, mean haemoglobin before treatment was 6.97+0.50 gm% in iron sucrose group. Day 7 haemoglobin after 1 week of iron sucrose infusion was 8.39+0.66 gm% with a mean rise of 4.1 gm%. P value is <0.0001 which was statistically significant.

In another pilot study done by Holm et al. (2017), compared single dose intravenous iron infusion versus red blood cell transfusion in severe post-partum anemia. He used a different iv preparation (iron isomaltose)for partum anaemia. He used haemoglobin in I.V. iron and blood transfusion groups before treatment were 6.8 and 6.75 gm/dl. After treatment he observed that Hb was higher in transfusion group than 1.V. iron group on day 1, but at the end of week 3 the mean Hb was higher in I.V. iron than transfusion group. The reason for this was explained by the author that RBC transfusions resulted in short lived effect on Hb on day 1, whereas iron stores and the hematopoietic response were significantly impaired. I.V. iron improved iron bio chemical outcomes, allowed a normal, iron replete hematopoietic response to severe postpartum anaemia and provided a

long-term normalization of hb.8.39+/-0.66 gm% with a mean rise of 4.1 gm%. P value is <0.0001 which was statistically significant.

The mean baseline haematocrit is 26.2% and 25.8% in iron sucrose and blood transfusion groups respectively. Post treatment haematocrit after 1 week of treatment showed, an average rise of 7.2% and 7.88% in iron sucrose and blood transfusion groups respectively. p value is 0.0001 in both groups (pre-treatment vs posttreatment) which is statistically significant. p value for change in Hct is 0.1089 (iron sucrose vs blood transfusion) which is statistically insignificant. This signifies both iron sucrose and blood transfusion are equally effective in improvement of mean Hct.

In authors study Khamaiseh et al. (2011), mean haematocrit before treatment was 25% and 24.5% in iron sucrose and blood transfusion groups respectively. Post therapy haematocrit after 1 week of treatment was 31.8% and 32.3% with the average rise of 6.3% and 7% in iron sucrose and blood transfusion groups respectively. P value <0.05 (pre-treatment vs posttreatment) which was statistically significant. This study was comparable with our study. In another study. Patange R.P et al[9], iron sucrose versus oral iron in post-partum anaemia, mean haematocrit before treatment was 20.66 +1.71% iron sucrose infusion was sucrose group. Post therapy haematocrit after 32.88+3.39% with a mean rise of 12.22%. This was statistically significant.

In our study mean MCV in group A and group B patients were 70.1 fl and 69.21 respectively. Post therapy assessment showed a mean MCV value of 82.5 fl and 82 with an average rise of was 12.4 fl and 12.8 fl respectively. P value is 0.0001 in both groups (pre-treatment vs posttreatment) which was statistically significant, p value for change in MCV is 0.5802 (iron sucrose vs blood transfusion) which is statistically insignificant. This signifies both iron sucrose and blood transfusion are equally effective in improvement of mean MCV. In another study Patange R.P et al 2014, mean MCV before treatment was 72.39+/- 6.79micron3 in iron sucrose group. Post therapy MCV after iron sucrose infusion on day 30 was 85.04+/- 7.81micron3 with a mean rise of 12.65 micron3. This was statistically significant. This was comparable to our study.

In another study Niranjana & Rajeswari (2018), studied effectiveness, tolerability and safety of intravenous iron in iron deficiency postnatal women. Mean MCV before treatment and after treatment were 73.26 +/-5.63 micron3 and 86.82.26+/-3.12micron respectively, with a mean change of 13.55+/-5.40 micron3 which was statistically significant. This was comparable to our study.

In the present study, mean ferritin before treatment in group A and group B patients were 9.2 and 9.128 ng/ml respectively. After 1 week of treatment the mean ferritin levels in group A and group B patients were 26.8 and 18.6 ng/ml with an increment of 17.175 and 9.472 ng/ml in group A and group B respectively. P value is < 0.0001 in both groups (pre-treatment vs posttreatment in both groups) which was statistically significant. p value for change in mean serum ferritin levels is <0.0001(iron sucrose vs blood transfusion), which is statistically insignificant. This signifies iron sucrose is effective in replenishment of iron stores more rapidly than blood. The possible explanation for this is on

administration of iron through intravenous route it is dissociated into iron and sucrose by reticuloendothelial system and iron is transferred from the blood into pool of iron in the liver and bone marrow.

In authors study Khamaiseh et al. (2011), the mean ferritin levels before treatment in Iron sucrose and blood transfusion groups were 7.4 and 7.1 ng/ml. Mean serum ferritin levels after 1 week of treatment were 22.6 and respectively. The average rise was 15.2 ng/ml in iron sucrose group and 10.5 ng/ml in blood transfusion group. p value <0.05 (pre-treatment vs post treatment) which was statistically significant. This study was comparable with our study.

In another study Giannoulis et al. (2009). Intravenous administration sucrose for treating anaemia in postpartum women, mean serum ferritin levels before treatment was <10 mg/l and mean levels after one week and four weeks of treatment with i.v. iron sucrose were 38 mg/l and 115 mg/l respectively. There was significant difference in the increase of serum ferritin levels which was statistically significant.

There are no serious adverse effects in the study, however 4% in IV group and 20% in blood transfusion group has minimal side effects, but continued with the study. Out of 25(100%) cases in iron sucrose group 1 (4%) developed vomiting and in blood transfusion group out of 25(100%), 2(8%) had vomiting, 2(8%) had developed fever with chills and 1(4%) presented with rash. The underlying mechanism for minimal side effects or no serious adverse effects with iron sucrose may be due to lower allergenic effect of the sucrose complex and also due to the slow release of iron from the complex. Moreover, as the complexes contain no biological polymers, anaphylactic reactions are highly unlikely.

In authors study Khamaiseh et al. (2011), no anaphylaxis or other serious side effects were encountered with Iron Sucrose, which was similar to our study. However, two patients reported facial flushing and three patients described a metallic taste. Neither of these necessitated stopping the infusion. In the blood transfusion group, two cases developed pruritis, two cases developed pyrexia, one case of rash, and one case of jaundice secondary to haemolysis, that resolved after four days. The woman developed jaundice one day after completion of 4 units of blood transfusion. She was managed conservatively and jaundice gradually resolved. Compliance in the study is, for the most part, fairly high. There are no drop outs from the study.

Limitation of the study

Our study extended to one week after the treatment.

Prospects for further research

Further studies should be performed to assess the influence of both blood transfusion and intravenous iron over a longer period of time. Although intravenous iron was compared to oral iron in the management of antenatal and postpartum anaemia, no studies where cited comparing blood transfusion to intravenous iron in symptomatic iron deficiency anaemia.

Conclusion

We conclude that Intravenous iron sucrose is as effective as blood transfusion, in improving haemoglobin, hemocrit values in the treatment of iron deficiency anaemia in postnatal women. It is safe and well tolerated when compared to blood transfusion. The adverse effects are minimal with iron sucrose is safe, efficacious and cost-effective treatment for post-partum anaemia. It may be an attractive alternative to blood transfusion. It is hoped that this treatment will reduce the need for blood transfusion.

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