West Middlesex University Hospital

Date: 22 January 2018
Sources: Medline, Embase.

Intravenous Iron for Postpartum Anaemia

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1. Effect of treatment with single total-dose intravenous iron versus daily oral iron(III)-hydroxide polymaltose on moderate puerperal iron-deficiency anemia.

Author(s): Iyoke, Chukwuemeka Anthony; Emegoakor, Fausta Chioma; Ezugwu, Euzebus Chinonye; Lawani, Lucky Osaheni; Ajah, Leonard Ogbonna; Madu, Jude Anazoeze; Ezegwui, Hyginus Uzo; Ezugwu, Frank Okechukwu

Source: Therapeutics and clinical risk management; 2017; vol. 13 ; p. 647-653

Publication Date: 2017

Publication Type(s): Journal Article

PubMedID: 28761350

Available at Therapeutics and clinical risk management - from Europe PubMed Central - Open Access

Abstract:BACKGROUNDIron-deficiency anemia is the most common nutritional cause of anemia in pregnancy and is often responsible for puerperal anemia. Puerperal anemia can impair postpartum maternal and neonatal well-being.OBJECTIVETo determine the effect of treatment of moderate puerperal iron-deficiency anemia using a single intravenous total-dose iron dextran versus daily single dose oral iron(III)-hydroxide polymaltose.METHODOLOGYA randomized controlled study in which postpartum women with moderate iron-deficiency anemia were randomized into treatment with either a single total-dose intravenous iron dextran or with daily single doses of oral iron(III)-hydroxide polymaltose tablets for 6 weeks. Effects on hemoglobin concentration using either method were compared at 6 weeks postpartum. Analysis was per protocol using SPSS version 17 for windows. P-values ≤0.05 were considered significant.RESULTSTwo hundred eighty-four women were recruited for the study: 142 women received single total dose intravenous infusion of iron dextran while 142 received daily oral iron(III)-hydroxide polymaltose tablets. Approximately 84.0% (237/282) completed the study and were analyzed including 81% (115/142) of those randomized to injectable iron therapy compared to 85.9% (122/142) of those randomized to oral treatment. The proportions of women who had attained hemoglobin concentration of at least 10 g/dL by the 6 weeks postpartum visit did not differ significantly between cases and controls (95.7% vs 94.3%; P=0.73). Similarly, the mean increases in hemoglobin following either therapeutic route were comparable (1.03±0.56 g/dL for intravenous iron and 0.97±0.46 g/dL for the oral group; P=0.42).CONCLUSIONSingle total-dose intravenous iron for treatment of puerperal iron-deficiency anemia was as effective as daily single doses of ferric iron tablets. For puerperal patients with iron-deficiency anemia in whom compliance with and tolerability of oral iron are not certain, a single total-dose intravenous iron can be safely offered.

Database: Medline

2. Comparison between intravenous iron and oral iron therapy in cases of postpartum anemia

Author(s): Razzaq M.; Azam M.I.; Naeem M.F.

Source: Pakistan Journal of Medical and Health Sciences; 2017; vol. 11 (no. 1); p. 277-280

Publication Date: 2017

Publication Type(s): Article

Abstract: Aim: To compare the efficacy of intravenous iron and oral iron therapy in postpartum anemia." Methods: A total of 82 patients with postpartum anemia, 20 to 35 years of age were included in the study. Patients with any chronic disease, thalassemia, folic acid deficiency and intolerance to iron were excluded. Then selected patients were placed randomly into two groups i.e., Group A (intravenous iron) & Group B (oral iron). All patients were followed till 6 weeks and efficacy (deemed as yes if there was rise in hemoglobin levels >3.5g/dl after 6 weeks of therapy) was noted Results: The mean age of women in group A was 26.36+/-4.30 year and in group B was 26.31+/-4.69 years with majority of the patients 41(50%) were between 20 to 25 years of age. There was rise in hemoglobin levels >3.5g/dl after 6 weeks of therapy in 36 patients in intravenous iron while in oral iron, it was seen in 27 patients. So, efficacy was 87.80% in group A (intravenous iron) and 65.85% in group B (oral iron) with p-value of 0.018. Conclusion: This study concludedthat intravenous iron therapy is associated with higher efficacy (in terms of increase in hemoglobin) as compared to oral iron therapy in treating postpartum anemia.

Database: EMBASE

3. Intravenous iron vs blood for acute post-partum anaemia (IIBAPPA): a prospective randomised trial.

Author(s): Chua, Seng; Gupta, Sarika; Curnow, Jennifer; Gidaszewski, Beata; Khajehei, Marjan; Diplock, Hayley

Source: BMC pregnancy and childbirth; Dec 2017; vol. 17 (no. 1); p. 424

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 29258541

Available at BMC pregnancy and childbirth - from BioMed Central

Available at BMC pregnancy and childbirth - from Europe PubMed Central - Open Access

Abstract:BACKGROUNDAcute post-partum anaemia can be associated with significant morbidity including a predisposition for postnatal depression. Lack of clear practice guidelines means a number of women are treated with multiple blood transfusions. Intravenous iron has the potential to limit the need for multiple blood transfusions but its role in the post-partum setting is unclear.METHODS/DESIGNIIBAPPA is a multi-centre randomised non-inferiority trial. Women with a primary post-partum haemorrhage (PPH) >1000 mL and resultant haemoglobin (Hb) 5.5-8.0 g/dL after resuscitation with ongoing symptomatic anaemia who are otherwise stable (no active bleeding) are eligible to participate. Patients with sepsis or conditions necessitating rapid Hb restoration are excluded. Eligible participants are randomised to receive a blood transfusion or a single dose of intravenous iron polymaltose calculated using the Ganzoni formula. Primary outcome measures include Hb, Ferritin and C-Reactive Protein levels on Day 7. Secondary outcomes evaluate (i) Hb, Ferritin and CRP levels on Day 14, 28, (ii) anaemia symptoms on Day 0, 7, 14 and 28 using structured health related quality of life questionnaires, (iii) treatment safety by assessing adverse reactions and infection endpoints and (iv) the quantitative impact of anaemia on breast feeding quality using a hospital designed questionnaire.DISCUSSIONIf equivalence in Hb and ferritin levels, symptom scores and safety endpoints is demonstrated, intravenous iron may become the preferred treatment for

women with acute post-partum anaemia to minimise transfusion reactions and costs.TRIAL REGISTRATIONAustralian and New Zealand Clinical Trials Registry: ACTRN12615001370594 on 16th December, 2015 (prospective approval).

Database: Medline

4. Results of the First American Prospective Study of Intravenous Iron in Oral Iron-Intolerant Iron-Deficient Gravidas.

Author(s): Auerbach, Michael; James, Stephanie E; Nicoletti, Melissa; Lenowitz, Steven; London, Nicola; Bahrain, Huzefa F; Derman, Richard; Smith, Samuel

Source: The American journal of medicine; Dec 2017; vol. 130 (no. 12); p. 1402-1407

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 28739199

Abstract:BACKGROUNDAnemia affects up to 42% of gravidas. Neonatal iron deficiency is associated with low birth weight, delayed growth and development, and increased cognitive and behavioral abnormalities. While oral iron is convenient, up to 70% report significant gastrointestinal toxicity. Intravenous iron formulations allowing replacement in one visit with favorable side-effect profiles decrease rates of anemia with improved hemoglobin responses and maternal fetal outcomes.METHODSSeventy-four oral iron-intolerant, second- and third-trimester iron-deficient gravidas were questioned for oral iron intolerance and treated with intravenous iron. All received 1000 mg of low-molecular-weight iron dextran in 250 mL normal saline. Fifteen minutes after a test dose, the remainder was infused over the balance of 1 hour. Subjects were called at 1, 2, and 7 days to assess delayed reactions. Four weeks postinfusion or postpartum, hemoglobin levels and iron parameters were measured. Paired t test was used for hemoglobin and iron; 58/73 women were questioned about interval growth and development of their babies.RESULTSSeventy-three of 74 enrolled subjects completed treatment. Sixty had paired pre- and posttreatment data. The mean pre- and posthemoglobin concentrations were 9.7 and 10.8 g/dL ($P < .00001$), transferrin saturations 11.7% and 22.6% ($P = .0003$), and ferritins 14.5 and 126.3 ng/mL, respectively ($P < .000001$). Six experienced minor infusion reactions. All resolved. Data for 58 infants were available; one was low on its growth charts for 11 months. The remaining 57 were normal. None were diagnosed with iron deficiency anemia.CONCLUSIONIntravenous iron has less toxicity and is more effective, supporting moving it closer to frontline therapy.

Database: Medline

5. Diagnosis and treatment of iron-deficiency anaemia in pregnancy and postpartum.

Author(s): Breymann, C; Honegger, C; Hösli, I; Surbek, D

Source: Archives of gynecology and obstetrics; Dec 2017; vol. 296 (no. 6); p. 1229-1234

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 28940095

Available at Archives of gynecology and obstetrics - from SpringerLink

Abstract: Iron deficiency occurs frequently in pregnancy and can be diagnosed by serum ferritin-level measurement (threshold value < 30 µg/L). Screening for iron-deficiency anemia is recommended in every pregnant women, and should be done by serum ferritin-level screening in the first trimester and regular hemoglobin checks at least once per trimester. In the case of iron deficiency with or without anaemia in pregnancy, oral iron therapy should be given as first-line treatment. In the case of severe iron-deficiency anemia, intolerance of oral iron, lack of response to oral iron, or in the case of a clinical need for rapid and efficient treatment of anaemia (e.g., advanced pregnancy), intravenous iron therapy should be administered. In the postpartum period, oral iron therapy should be administered for mild iron-deficiency anemia (haemorrhagic anemia), and intravenous iron therapy for moderately severe-to-severe anemia (Hb < 95 g/L). If there is an indication for intravenous iron therapy in pregnancy or postpartum, iron-containing drugs which have been studied in well-controlled clinical trials in pregnancy and postpartum such as ferric carboxymaltose must be preferred for safety reasons. While anaphylactic reactions are extremely are with non-dextrane products, close surveillance during administration is recommended for all intravenous iron products.

Database: Medline

6. Safety and efficacy of intravenous iron administration for uterine bleeding or postpartum anaemia: a narrative review.

Author(s): Daniilidis, Angelos; Panteleris, Nikolaos; Vlachaki, Efthymia; Breymann, Christian; Assimakopoulos, Efstratios

Source: Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; Oct 2017 ; p. 1-5

Publication Date: Oct 2017

Publication Type(s): Journal Article

PubMedID: 29057687

Abstract: The management of iron deficiency anaemia (IDA) consists of oral or intravenous administration of iron supplements. The aim of this narrative review is to summarise information regarding the treatment of IDA in women who have postpartum anaemia or uterine bleeding with intravenous (IV) or oral iron supplements. Fourteen randomised control studies comparing IV to oral iron treatment for IDA in 2913 women with uterine bleeding or postpartum haemorrhage are included. All reviewed studies suggest that IV iron administration is important in treating the IDA in such women and in improving their physical performance and quality of life. Comparisons among intravenous iron supplements show advantages of ferric carboxymaltose over others in time of reaching desired haemoglobin and ferritin values and in adverse reactions. Despite the limitation that the above evidence emerges from not systematically collected data, our review highlights that new forms of IV iron supplements seem safe and efficient in treating IDA.

Database: Medline

7. Single-dose intravenous iron infusion or oral iron for treatment of fatigue after postpartum haemorrhage: a randomized controlled trial.

Author(s): Holm, C; Thomsen, L L; Norgaard, A; Langhoff-Roos, J

Source: Vox sanguinis; Apr 2017; vol. 112 (no. 3); p. 219-228

Publication Date: Apr 2017

Publication Type(s): Randomized Controlled Trial Journal Article

PubMedID: 28198084

Available at Vox sanguinis - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:BACKGROUND AND OBJECTIVESTo evaluate the clinical efficacy of a single-dose intravenous infusion of iron isomaltoside compared with current treatment practice with oral iron measured by physical fatigue in women after postpartum haemorrhage.MATERIALS AND METHODSSingle-centre, open-label, randomized controlled trial. Participants received intravenous iron (n = 97) or oral iron (n = 99), and completed the Multidimensional Fatigue Inventory and Edinburgh Postnatal Depression Scale, and haematological and iron parameters were measured. Primary outcome was the aggregated change in physical fatigue score from baseline to 12 weeks postpartum.RESULTSThe difference in physical fatigue score was -0·97 (95% CI: -1·65; -0·28, P = 0·006) in favour of intravenous iron, but did not meet the predefined difference of 1·8. Across visits, we found statistically significant differences in fatigue and depression scores, as well as in haematological and iron parameters, all in favour of intravenous iron. There were no serious adverse reactions.CONCLUSIONA single dose of intravenous iron was associated with a statistically significant reduction in aggregated physical fatigue within 12 weeks after postpartum haemorrhage compared to standard medical care with oral iron below the prespecified criteria of clinical superiority. As patient-reported outcomes improved significantly and intravenous iron resulted in a fast hematopoietic response without serious adverse reactions, intravenous iron may be a useful alternative after postpartum haemorrhage if oral iron is not absorbed or tolerated.

Database: Medline

8. Comparison of intravenous ferrous sucrose and oral ferrous sulphate in treatment of postpartum iron deficiency anemia

Author(s): El Khouly N.I.

Source: Journal of Maternal-Fetal and Neonatal Medicine; Apr 2017; vol. 30 (no. 8); p. 967-971

Publication Date: Apr 2017

Publication Type(s): Article

PubMedID: 27269410

Abstract: Objective: The objective of the study was to evaluate the efficacy, safety and tolerability of intravenous ferrous sucrose, compared to oral ferrous sulphate in women with postpartum iron deficiency anemia (IDA). Methods: In a single center, randomized, controlled study, 352 patients with hemoglobin 9 gm/dl or less and serum ferritin of <15 mug/l two days after delivery were equally randomized to receive intravenous ferrous sucrose (up to three calculated replacement doses) or oral ferrous sulphate (150 mg twice daily for six weeks). Primary measures were to assess the rise in hemoglobin (Hb) and serum ferritin. Results: By day 5, the Hb level in women treated with intravenous ferrous sucrose had rised from 8.48 +/- 0.47 to 9.4 +/- 0.56 gm/dl. Women treated with intravenous ferrous sucrose had significantly higher Hb levels on day 5, day 14 and day 40 ($p < 0.01$) than those treated with oral ferrous sulphate. Throughout the study, ferritin level rose rapidly in those treated with intravenous iron and remained significantly higher than in those treated with oral iron ($p < 0.001$). Conclusion: Intravenous ferrous sucrose increases Hb level more rapidly than ferrous sulphate in women with postpartum IDA. It also replenishes iron stores more rapidly with better tolerability.

Database: EMBASE

9. The use of intravenous ferric carboxymaltose (Ferinject) in the immediate postpartum period in a UK teaching hospital

Author(s): Halcrow J.; Dubiel L.; Connolly C.

Source: Transfusion Medicine; Apr 2017; vol. 27 ; p. 53

Publication Date: Apr 2017

Publication Type(s): Conference Abstract

Abstract: Introduction: The use of intravenous iron as part of a peripartum anaemia management programme has been established in our obstetric department since 2006. In January 2016 we changed the iron preparation to ferric carboxymaltose (Ferinject) to enable adequate replacement of iron in a single infusion instead of the multiple infusions required with iron sucrose (Venofer). We conducted a service evaluation to ensure our patients had an adequate response to therapy without adverse effects following this change. Method: Patients received intravenous iron if they had an estimated blood loss greater than 1500 mL or post-delivery haemoglobin concentration less than 85 g/L. They were identified for follow-up using an audit form completed by the midwives at the time of administration. Estimated blood loss, allogeneic blood transfusion, haemoglobin concentration and adverse events were recorded. Patients were advised to have their blood rechecked at 10 days by their communitymidwife. These results were followed up using the local laboratory intranet portal. An adequate response was defined as haemoglobin concentration over 100 g/L 10 days after treatment. Results: Over an 11-month period, 110 women received intravenous iron. All had their haemoglobin checked post-delivery and 61 had it checked at 10 days. The mean post-delivery haemoglobin was 88.7 g/L, rising to 108.2 g/L at 10 days. Of these, 25 women received an allogenic

blood transfusion in addition to intravenous iron. There was no difference between either the mean post-delivery haemoglobin (89.4 vs. 88.5 g/L) or mean 10-day haemoglobin (108.6 vs. 108.1 g/L) when compared to women who were not transfused. No adverse events were noted. Conclusion: Ferinject is a satisfactory and safe treatment of postnatal anaemia. All women had a haemoglobin increase to over 80 g/L at 10 days, with 80% of those checked reaching the target of 100 g/L. This was achieved with a single 1000-mg infusion shortly after delivery, thereby preventing delayed discharge or repeat hospital attendance.

Database: EMBASE

10. The role of Iron infusion in postpartum anaemia

Author(s): Colley C.; Chaudhry U.; Eissa A.

Source: BJOG: An International Journal of Obstetrics and Gynaecology; Mar 2017; vol. 124 ; p. 118-119

Publication Date: Mar 2017

Publication Type(s): Conference Abstract

Available at BJOG: An International Journal of Obstetrics and Gynaecology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract: Introduction NHS blood and transplant issued 1.7 million units of red blood cells (RBCs) in 2014/15. RBCs are scarce and expensive therefore alternative treatments for anaemia should be considered. (1, 2) Blood transfusion (BT) increases the rate of sepsis and mortality in postoperative patients; with a 0.5-3% quoted risk of adverse transfusion reactions. (4, 5, 7) NICE guidelines recommend BT at a haemoglobin of 70 g/l, emphasises transfusion of 1 unit followed by repeat haemoglobin and clinical assessment aiming for a level of 70-90 g/l. NICE advises using tranexamic acid for bleeding patients and oral or intravenous iron (IVI) in anaemia. Methods This is a retrospective audit of BT in postnatal women at University College Hospital London from January to May 2016. The number of patients was 68, average pre-transfusion haemoglobin was 74 g/l, average increase after transfusion was by 18.3 g/l and the average number of units transfused was 2.2. The majority had operative vaginal delivery (43%), 25% SVD, 25% emergency caesarean sections (EMCs) and 7% elective caesarean sections. Results On average women stayed 5.3 days (1.3 day delay between delivery and transfusion). Zero women delivered by EMCs achieved the trust target of 48 hours stay whilst 7% of other patients achieved their 24 hour aim. Conclusion The average pre-transfusion haemoglobin was 74 g/l; 30% of women had a haemoglobin <70 g/l suggesting possible alternatives in two thirds of women. Finally the average cost of BT per person in this audit is 364.55 (170.14 per first unit and 162.01 per subsequent unit) compared to a cost of 1.51 and 79.70 for oral and IVI respectively.

Database: EMBASE

11. Single-dose intravenous iron infusion versus red blood cell transfusion for the treatment of severe postpartum anaemia: a randomized controlled pilot study.

Author(s): Holm, C; Thomsen, L L; Norgaard, A; Langhoff-Roos, J

Source: Vox sanguinis; Feb 2017; vol. 112 (no. 2); p. 122-131

Publication Date: Feb 2017

Publication Type(s): Randomized Controlled Trial Clinical Trial Journal Article

PubMedID: 28010050

Abstract:BACKGROUND AND OBJECTIVESThere are no randomized trials comparing intravenous iron to RBC transfusion for the treatment of severe postpartum anaemia. The objectives of this study were to evaluate the feasibility of randomizing women with severe postpartum anaemia secondary to postpartum haemorrhage to RBC transfusion or intravenous iron, and to describe patient-reported outcomes, and haematological and iron parameters.MATERIALS AND METHODSWomen with a postpartum haemorrhage exceeding 1000 ml and an Hb between 5·6 and 8·1 g/dl were randomized to 1500 mg of intravenous iron (n = 7) isomaltoside or RBC transfusion (n = 6). Participants completed the Multidimensional Fatigue Inventory and Edinburgh Postnatal Depression Scale, and blood samples were drawn at inclusion, daily during the first week and at weeks 3, 8 and 12.RESULTSWe screened 162 women and included 13 (8%). There was no significant difference between groups in fatigue or depression scores. RBC transfusion was associated with a higher Hb on day 1, inhibition of reticulocytosis during the first week and low iron levels. Intravenous iron was associated with increased reticulocytosis during the first week, repleted iron stores and a higher Hb in weeks 3-12.CONCLUSIONThis pilot study shows that intravenous iron could be an attractive alternative to RBC transfusion in severe postpartum anaemia, and that a larger trial is needed and feasible.

Database: Medline

12. Intravenous Iron Sucrose Therapy in Iron Deficiency Anemia in Antenatal and Postnatal Patients.

Author(s): Sharma, J; Tiwari, S

Source: JNMA; journal of the Nepal Medical Association; 2015; vol. 53 (no. 198); p. 104-107

Publication Date: 2015

Publication Type(s): Journal Article

PubMedID: 26994029

Abstract:INTRODUCTIONIron deficiency anemia is the most common nutritional deficiency in pregnancy and more common in developing countries which is aggravated due to increased demand and blood loss during delivery. Though there are different methods for treating iron deficiency anemia. Iron sucrose is being used because of its minimal side effects. This study was undertaken to evaluate the response and effect of intravenous iron sucrose given to patient in antenatal and postnatal period with moderate iron deficiency anemia.METHODSA hospital based prospective study was conducted 1st Jan 2013-30th Dec 2014 in the department of obstetrics and gynecology Kathmandu Medical College, Teaching Hospital Kathmandu, Nepal. Antenatal and postnatal patients with hemoglobin between 5-9 gm% with diagnosed iron deficiency anemia were included in the study. The aim was to bring her hemoglobin level to 11gm%.RESULTSAll together 37 patients were enrolled out of which two patient were dropped due to allergic reaction and 35 patients were included in study. Iron sucrose therapy is effective in achieving target hemoglobin of 11gm/dl in 80% of patients. It showed that intravenous iron sucrose significantly ($P < 0.001$) increase hemoglobin level within two weeks of therapy without any major adverse effects.CONCLUSIONSIron sucrose therapy is safe, effective and well tolerated for the treatment of iron deficiency anemia. Parental iron therapy was effective in increasing hemoglobin, serum ferritin and other hematological parameters in antenatal and postnatal patients with anemia. The treatment will help to reduce the risk of maternal complication during pregnancy and postpartum and its adverse effect to fetus.

Database: Medline

13. Ferric carboxymaltose: A revolution in the treatment of postpartum anemia in Indian women.

Author(s): Rathod, Setu; Samal, Sunil K; Mahapatra, Purna C; Samal, Sunita

Source: International journal of applied & basic medical research; 2015; vol. 5 (no. 1); p. 25-30

Publication Date: 2015

Publication Type(s): Journal Article

PubMedID: 25664264

Abstract:OBJECTIVESThe objective of the present study is to compare the safety and efficacy of ferric carboxymaltose (FCM), intravenous (IV) iron sucrose and oral iron in the treatment of post = partum anemia (PPA).MATERIALS AND METHODSA total of 366 women admitted to SCB Medical College, Cuttack between September 2010 and August 2012 suffering from PPA hemoglobin (Hb) <10 g/dL were randomly assigned to receive either oral iron or IV FCM or iron sucrose. FCM, IV iron sucrose, and oral iron were given as per the protocol. Changes in hemoglobin (Hb) and serum ferritin levels at 2 and 6 weeks after treatment were measured and analyzed using ANOVA. Adverse effects to drug administration were also recorded.RESULTSA statistically significant increase in Hb and serum ferritin level were observed in all three groups, but the increase in FCM group was significantly higher ($P < 0.0001$) than conventional iron sucrose and oral iron group. The mean increase in Hb after 2 weeks was 0.8, 2.4, and 3.2 g/dL and 2.1, 3.4, and 4.4 g/dL at 6 weeks in oral iron, iron sucrose and FCM groups, respectively. The mean increase in serum ferritin levels after 2 weeks was 2.5, 193.1, and 307.1 and 14.2, 64, and 106.7 ng/mL after 6 weeks in oral iron, iron sucrose and FCM groups, respectively. Adverse drug reactions were significantly less ($P < 0.001$) in FCM group when compared with other two groups.CONCLUSIONFerric carboxymaltose elevates Hb level and restores iron stores faster than IV iron sucrose and oral iron, without any severe adverse reactions. There was better overall satisfaction reported by the patients who received FCM treatment.

Database: Medline

14. Diagnosis and treatment of iron deficiency anemia during pregnancy and the postpartum period: Iron deficiency anemia working group consensus report.

Author(s): Api, Olus; Breyman, Christian; Çetiner, Mustafa; Demir, Cansun; Ecder, Tevfik

Source: Turkish journal of obstetrics and gynecology; Sep 2015; vol. 12 (no. 3); p. 173-181

Publication Date: Sep 2015

Publication Type(s): Journal Article Review

PubMedID: 28913064

Available at Turkish journal of obstetrics and gynecology - from nih.gov

Abstract: According to the World Health Organization (WHO), anemia is the most common disease, affecting >1.5 billion people worldwide. Furthermore, iron deficiency anemia (IDA) accounts for 50% of cases of anemia. IDA is common during pregnancy and the postpartum period, and can lead to serious maternal and fetal complications. The aim of this report was to present the experiences of a multidisciplinary expert group, and to establish reference guidelines for the optimal diagnosis and treatment of IDA during pregnancy and the postpartum period. Studies and guidelines on the diagnosis and treatment of IDA published in Turkish and international journals were reviewed. Conclusive recommendations were made by an expert panel aiming for a scientific consensus. Measurement of serum ferritin has the highest sensitivity and specificity for diagnosis of IDA unless there is a concurrent inflammatory condition. The lower threshold value for hemoglobin (Hb) in pregnant women is <11 g/dL during the 1st and 3rd trimesters, and <10.5 g/dL during the 2nd trimester. In postpartum period a Hb concentration <10 g/dL indicates clinically significant anemia. Oral iron therapy is given as the first-line treatment for IDA. Although current data are limited, intravenous (IV) iron therapy is an alternative therapeutic option in patients who do not respond to oral iron therapy, have adverse reactions, do not comply with oral iron treatment, have a very low Hb concentration, and require rapid iron repletion. IV iron preparations can be safely used for the treatment of IDA during pregnancy and the postpartum period, and are more beneficial than oral iron preparations in specific indications.

Database: Medline

15. Treatment for women with postpartum iron deficiency anaemia.

Author(s): Markova, Veronika; Norgaard, Astrid; Jørgensen, Karsten Juhl; Langhoff-Roos, Jens

Source: The Cochrane database of systematic reviews; Aug 2015 (no. 8); p. CD010861

Publication Date: Aug 2015

Publication Type(s): Meta-analysis Journal Article Review

PubMedID: 26270434

Available at The Cochrane database of systematic reviews - from Cochrane Collaboration (Wiley)

Abstract:BACKGROUNDPostpartum iron deficiency anaemia is caused by bleeding or inadequate dietary iron intake/uptake. This condition is defined by iron deficiency accompanied by a lower than normal blood haemoglobin concentration, although this can be affected by factors other than anaemia and must be interpreted in the light of any concurrent symptoms. Symptoms include fatigue, breathlessness, and dizziness. Treatment options include oral or intravenous iron, erythropoietin which stimulates red blood cell production, and substitution by red blood cell transfusion.OBJECTIVESTo assess the efficacy and harms of the available treatment modalities for women with postpartum iron deficiency anaemia.SEARCH METHODSThe Cochrane Pregnancy and Childbirth Group's Trials Register (9 April 2015); the WHO International Clinical Trials Registry Portal (ICTRP), and the Latin-American and Caribbean Health Sciences Literature database (LILACS) (8 April 2015) and reference lists of retrieved studies.SELECTION CRITERIAWe included published, unpublished and ongoing randomised controlled trials that compared a treatment for postpartum iron deficiency anaemia with placebo, no treatment, or another treatment for postpartum iron deficiency anaemia, including trials described in abstracts only. Cluster-randomised trials were eligible for inclusion. We included both open-label trials and blinded trials, regardless of who was blinded. The participants were women with a postpartum haemoglobin of 120 g per litre (g/L) or less, for which treatment was initiated within six weeks after childbirth.Non-randomised trials, quasi-randomised trials and trials using a cross-over design were excluded.DATA COLLECTION AND ANALYSISTwo review authors independently assessed studies for inclusion, quality, and extracted data. We contacted study authors and pharmaceutical companies for additional information.MAIN RESULTSWe included 22 randomised controlled trials (2858 women), most of which had high risk of bias in several domains. We performed 13 comparisons. Many comparisons are based on a small number of studies with small sample sizes. No analysis of our primary outcomes contained more than two studies.Intravenous iron was compared to oral iron in 10 studies (1553 women). Fatigue was reported in two studies and improved significantly favouring the intravenously treated group in one of the studies. Other anaemia symptoms were not reported. One woman died from cardiomyopathy (risk ratio (RR) 2.95; 95% confidence interval (CI) 0.12 to 71.96; two studies; one event; 374 women; low quality evidence). One woman developed arrhythmia. Both cardiac complications occurred in the intravenously treated group. Allergic reactions occurred in three women treated with intravenous iron, not statistically significant (average RR 2.78; 95% CI 0.31 to 24.92; eight studies; 1454 women; I^2 = 0%; low quality evidence). Gastrointestinal events were less frequent in the intravenously treated group (average RR 0.31; 95% CI 0.20 to 0.47; eight studies; 169 events; 1307 women; I^2 = 0%; very low quality evidence).One study evaluated red blood cell transfusion versus non-intervention. General fatigue improved significantly more in the transfusion group at three days (MD -0.80; 95% CI -1.53 to -0.07; women 388; low quality evidence), but no difference between groups was seen at six weeks. Maternal mortality was not reported.The remaining comparisons evaluated oral iron (with or without other food substances) versus placebo (three studies), intravenous iron with oral iron versus oral iron (two studies) and erythropoietin (alone or combined with iron) versus placebo or iron (seven studies). These studies did not investigate fatigue. Maternal mortality was rarely reported.AUTHORS' CONCLUSIONSThe body of evidence did not allow us to reach a clear conclusion regarding the efficacy of the interventions on postpartum iron deficiency anaemia. The quality of evidence was low.Clinical outcomes were rarely

reported. Laboratory values may not be reliable indicators for efficacy, as they do not always correlate with clinical treatment effects. It remains unclear which treatment modality is most effective in alleviating symptoms of postpartum anaemia.Intravenous iron was superior regarding gastrointestinal harms, however anaphylaxis and cardiac events occurred and more data are needed to establish whether this was caused by intravenous iron.The clinical significance of some temporarily improved fatigue scores in women treated with blood transfusion is uncertain and this modest effect should be balanced against known risks, e.g. maternal mortality (not reported) and maternal immunological sensitisation, which can potentially harm future pregnancies.When comparing oral iron to placebo it remains unknown whether efficacy (relief of anaemia symptoms) outweighs the documented gastrointestinal harms.We could not draw conclusions regarding erythropoietin treatment due to lack of evidence.Further research should evaluate treatment effect through clinical outcomes, i.e. presence and severity of anaemia symptoms balanced against harms, i.e. survival and severe morbidity.

Database: Medline

16. Long-term efficacy of postpartum intravenous iron therapy.

Author(s): Becuzzi, Nadine; Zimmermann, Roland; Krafft, Alexander

Source: BioMed research international; 2014; vol. 2014 ; p. 815437

Publication Date: 2014

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 25431768

Available at BioMed research international - from Europe PubMed Central - Open Access

Available at BioMed research international - from Hindawi Open Access Journals

Available at BioMed research international - from Free Medical Journals . com

Abstract:BACKGROUNDThe potential benefits of administering a dose of intravenous iron in patients with moderate postpartum anaemia rather than oral iron alone remains unproven.AIMSTo determine whether a single injection of intravenous iron followed by a 6-week course of oral iron is as effective over 6 months in restoring normal haemoglobin levels and replenishing iron stores in women with moderate postpartum anaemia as a course of oral iron alone in women with mild postpartum anaemia.MATERIALS AND METHODSRetrospective two-arm cohort study in women with mild postpartum anaemia (haemoglobin 9.6-10.5 g/dL) prescribed iron daily for 6 weeks (N=150) and women with moderate postpartum anaemia (haemoglobin 8.5-9.5 g/dL), given a single 500 mg injection of intravenous iron followed by iron daily for 6 weeks (N=75). Haemoglobin and ferritin were measured 6 months postpartum.RESULTSHaemoglobin returned to similar mean levels in both groups. Ferritin levels were statistically significantly higher in the intravenous+oral group (57.7±49.3 µg/L versus 32.9±20.1 µg/L).CONCLUSIONSDespite lower baseline haemoglobin, intravenous iron carboxymaltose was superior to oral iron alone in replenishing iron stores in moderate postpartum anaemia and may prove similarly beneficial in mild postpartum anaemia.

Database: Medline

17. Intravenous ferrous sucrose versus placebo in addition to oral iron therapy for the treatment of severe postpartum anaemia: a randomised controlled trial.

Author(s): Perelló, M F; Coloma, J L; Masoller, N; Esteve, J; Palacio, M

Source: BJOG : an international journal of obstetrics and gynaecology; May 2014; vol. 121 (no. 6); p. 706-713

Publication Date: May 2014

Publication Type(s): Research Support, Non-u.s. Gov't Comparative Study Randomized Controlled Trial Journal Article

PubMedID: 24423186

Abstract:OBJECTIVEThe aim of the study was to evaluate the effectiveness of intravenous iron versus placebo added to standard oral iron therapy in the treatment of severe postpartum anaemia.DESIGNA randomised, double-blind, parallel-group, placebo-controlled clinical trial was performed in a single centre.SETTINGHospital Clinic of Barcelona, Barcelona, Spain.POPULATIONA cohort of 72 women with severe postpartum anaemia (6.0-8.0 g/dl) treated with oral ferrous sulphate (two tablets of 525 mg).METHODSWomen were randomised to receive either intravenous ferrous sucrose (200 mg/24 hours for two consecutive days) or intravenous placebo, in addition to standard iron therapy. Clinical and laboratory data were obtained at 1, 2, and 6 weeks.MAIN OUTCOME MEASURESHaemoglobin and haematocrit at 1, 2, and 6 weeks. Other haematological and clinical parameters, psychological status, and adverse side effects were also evaluated.RESULTSHaemoglobin and haematocrit values were comparable in women receiving intravenous iron or placebo in addition to oral iron therapy at any of the time points. At 6 weeks, haemoglobin level (mean ± SD) was 12.2 ± 1.0 versus 12.2 ± 0.9 g/dl, with a mean difference of -0.03 (95% CI -0.6 to 0.6), in the placebo and in the intravenous iron groups, respectively. No differences were found between clinical symptoms of anaemia, psychological status, and adverse side effects between groups.CONCLUSIONSIntravenous iron added to oral iron therapy did not show significant benefits over placebo, neither in haemoglobin rise nor in symptoms or adverse side effects.

Database: Medline

18. Intravenous iron sucrose versus oral iron ferrous sulfate for antenatal and postpartum iron deficiency anemia: a randomized trial.

Author(s): Froessler, Bernd; Cocchiaro, Carmel; Saadat-Gilani, Khaschayar; Hodyl, Nicolette; Dekker, Gustaaf

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; May 2013; vol. 26 (no. 7); p. 654-659

Publication Date: May 2013

Publication Type(s): Comparative Study Randomized Controlled Trial Journal Article

PubMedID: 23130909

Abstract:OBJECTIVETo compare oral iron to intravenous iron administration to women in late pregnancy and/or after labor to correct iron deficiency.METHODS271 anemic women (148 pregnant women and 123 women post lower segment caesarean section) with hemoglobin (Hb) levels below 110 g/L were enrolled over a two-year period and randomized to receive either two tablets FGF (ferrous sulfate with folic acid) or 400 mg of intravenous iron sucrose plus folic acid 600 µg. Treatment effectiveness was assessed by measuring Hb and ferritin postpartum on day 1, day 14 and day 42. Transfusions of red blood cells and adverse drug reactions were recorded.RESULTSData of 214 women were available for analysis. Both forms of iron replacement therapy led to increased hemoglobin and ferritin levels over the testing period. Ferritin was significantly higher in the i.v. iron treatment group compared to the oral iron treatment group ($p = 0.004$) two weeks after delivery, while Hb values did not differ between the groups. No serious adverse drug reactions were observed. Red blood cell transfusion rate was low (1.9%), with equal rates observed in both treatment groups.CONCLUSIONIntravenous and oral irons were both effective in correcting peripartum anemia, although intravenous iron restored stores faster than oral iron.

Database: Medline

19. Intravenous iron in postpartum anemia.

Author(s): Jain, Geeta; Palaria, Urmila; Jha, S K

Source: Journal of obstetrics and gynaecology of India; Mar 2013; vol. 63 (no. 1); p. 45-48

Publication Date: Mar 2013

Publication Type(s): Journal Article

PubMedID: 24431599

Available at Journal of obstetrics and gynaecology of India - from SpringerLink

Available at Journal of obstetrics and gynaecology of India - from Europe PubMed Central - Open Access

Available at Journal of obstetrics and gynaecology of India - from nih.gov

Abstract:OBJECTIVETo compare effectiveness of intravenous iron-sucrose versus oral ferrous fumarate in postpartum anemia.METHODSIn this study, 40 women with postpartum anemia with hemoglobin (Hb) less than 8 g/dl within 48 h postpartum were randomised into two groups. Group I consisted of 20 women who received 300-600 mg of intravenous iron-sucrose every alternate day for 3 days. Group II consisted of 20 women who were given 300 mg ferrous fumarate orally daily for 14 days.RESULTSOn day 14, the increase in mean Hb level in group I was 2.4 g/dl in comparison to 1.2 g/dl in group II. Women in group I had significantly higher mean Hb values on days 7 and 14 ($p < 0.001$) than women in group II.CONCLUSIONThese results suggest that intravenous iron-sucrose increases the Hb level more rapidly than oral ferrous fumarate in postpartum anemia without any serious side effects.

Database: Medline

20. Comparison of adverse event profile of intravenous iron sucrose and iron sucrose similar in postpartum and gynecologic operative patients.

Author(s): Lee, Eun Sil; Park, Bo Ra; Kim, Jeong Sig; Choi, Gyu Yeon; Lee, Jeong Jae; Lee, Im Soon

Source: Current medical research and opinion; Feb 2013; vol. 29 (no. 2); p. 141-147

Publication Date: Feb 2013

Publication Type(s): Research Support, Non-u.s. Gov't Comparative Study Journal Article

PubMedID: 23252876

Abstract:OBJECTIVESevere iron deficiency resulting in anemia is a common problem during pregnancy and in menstruating women. Several choices for IV iron replacement therapies exist and increased pressures on budgets may require cheaper 'iron sucrose similar' (ISS) to be used. In our practice, an iron sucrose similar (Ferex; ISS(FRX)) was introduced to reduce costs in the treatment of pregnant women or those planned for surgery. Post several months of use we observed increased rates of adverse events from patients and hence performed this analysis to confirm these findings.METHODSData on adverse events was retrospectively collected from 658 patients treated between September 2004 and December 2011. Patients were analyzed in three cohorts, iron sucrose originator (IS(ORIG)), ISS(FRX) diluted in 100 mL saline and ISS(FRX) diluted in 200 mL saline.RESULTSThe mean age was 38.5 years and included patients having normal delivery, Cesarean section, myomectomy, hysterectomy, cystectomy and adnexectomy. There were 169 patients in the IS(ORG) group and 210 and 279 in the ISS(FRX)-100 and ISS(FRX)-200 groups respectively. Adverse drug reactions were more frequent in the ISS(FRX) groups vs. IS(ORIG) (11.0 vs. 14.3 vs. 1.8%; $p < 0.02$). Events were mild-to-moderate in nature and were predominately injection site reactions and phlebitis.RESULTSmay be impacted by imbalance in baseline characteristics and cumulative iron dose received, however events were mostly acute and all patients received 200 mg iron as single administration.CONCLUSIONThis is the first large analysis suggesting increased adverse events due to an ISS. For our practice, the use of ISS(FRX) was discontinued owing to safety concerns outweighing the theoretical cost benefit. This study raises the question on the appropriate approval process for complex drugs and if these can be substituted without appropriate clinical testing, both for efficacy and most importantly safety, in routine clinical practice.

Database: Medline

21. Iron deficiency anaemia in pregnancy and postpartum: pathophysiology and effect of oral versus intravenous iron therapy.

Author(s): Khalafallah, Alhossain A; Dennis, Amanda E

Source: Journal of pregnancy; 2012; vol. 2012 ; p. 630519

Publication Date: 2012

Publication Type(s): Journal Article Review

PubMedID: 22792466

Abstract: Nutritional iron-deficiency anaemia (IDA) is the most common disorder in the world, affecting more than two billion people. The World Health Organization's global database on anaemia has estimated a prevalence of 14% based on a regression-based analysis. Recent data show that the prevalence of IDA in pregnant women in industrialized countries is 17.4% while the incidence of IDA in developing countries increases significantly up to 56%. Although oral iron supplementation is widely used for the treatment of IDA, not all patients respond adequately to oral iron therapy. This is due to several factors including the side effects of oral iron which lead to poor compliance and lack of efficacy. The side effects, predominantly gastrointestinal discomfort, occur in a large cohort of patients taking oral iron preparations. Previously, the use of intravenous iron had been associated with undesirable and sometimes serious side effects and therefore was underutilised. However, in recent years, new type II and III iron complexes have been developed, which offer better compliance and toleration as well as high efficacy with a good safety profile. In summary, intravenous iron can be used safely for a rapid repletion of iron stores and correction of anaemia during and after pregnancy.

Database: Medline

22. Treatment of iron deficiency anemia in pregnancy and postpartum

Author(s): Breymann C.; Krafft A.

Source: Transfusion Alternatives in Transfusion Medicine; Dec 2012; vol. 12 (no. 3); p. 135-142

Publication Date: Dec 2012

Publication Type(s): Article

Abstract: Iron deficiency (ID), iron deficiency anemia (IDA) and the resulting reduction in blood reserves are one the most common problems in pregnancy. Both oral iron - the traditional treatment - and blood transfusion involve significant drawbacks. High doses of oral iron frequently cause side effects, and noncompliance is common. Therefore, intravenous iron, alone or in association with recombinant human erythropoietin (rHuEPO), has been evaluated as an alternative in the management of ID in this setting. There is increasing evidence that iron sucrose is effective for treating IDA and safe for the mother and the fetus, using the recommended dosages and treatment regimens. In the postpartum period, both iron sucrose and ferric carboxymaltose have been shown to be efficacious, alone or in combination with rHuEPO. In pregnancy and in the postpartum period, the expected hemoglobin increase and treatment times are predictable according to the present data; therefore, in the presence of moderate-to-severe anemia, it can be questioned whether it is reasonable to wait for a response to oral iron. Indications for the use of iron sucrose and ferric carboxymaltose are preexisting moderate-to-severe anemia, no effect of oral iron, side effects of oral iron, refusal of blood transfusion, limited time until delivery, coexisting risk factors (e.g. inflammatory bowel disease, renal disease), the preoperative and postoperative periods and postpartum anemia. Future fields of research include the impact of intravenous iron therapy on patient satisfaction and quality of life, costs, hospital length of stay, blood transfusion rate, mortality rate, and other outcomes such as breastfeeding behavior and neonatal outcomes (e.g. birth weight, prematurity and neonatal iron stores).

Database: EMBASE

23. Safety and efficacy of high-dose intravenous iron carboxymaltose vs. iron sucrose for treatment of postpartum anemia.

Author(s): Pfenniger, Anita; Schuller, Christine; Christoph, Patricia; Surbek, Daniel

Source: Journal of perinatal medicine; Apr 2012; vol. 40 (no. 4); p. 397-402

Publication Date: Apr 2012

Publication Type(s): Comparative Study Journal Article

PubMedID: 22752771

Abstract:OBJECTIVEThe purpose of this study is to compare the safety and efficacy of intravenous (IV) high-dose iron carboxymaltose (ICM) with iron sucrose (IS) for the treatment of postpartum anemia.STUDY DESIGNWe performed a retrospective cohort study with 210 anemic inpatient women in the postpartum period who received IV high-dose ICM (15 mg/kg; maximum, 1000 mg) or IS (2×200 mg), respectively. Safety and tolerability of both groups were compared on the basis of reported systemic and local adverse events. The cohorts were matched for baseline characteristics and their initial hemoglobin (Hb) values. The secondary endpoint included drug efficacy assessment by measurement of Hb level increase up to 8 days after treatment.RESULTSRapid administration of high ICM doses was as well tolerated as IS with overall adverse events of 5% (ICM) vs. 6% (IS). The most common complaint was burning and pain at the injection site. ICM was as effective as IS in changing Hb levels from the baseline. There was no difference in the mean daily Hb increase between the groups. Women with severe anemia showed the most effective responsiveness.CONCLUSIONSIV ICM is as safe as IS in the management of postpartum (IDA) iron deficiency anemia despite five times of higher dosage. Both drugs are effective and offer a rapid normalization of Hb after delivery. The single application of ICM shows advantages of lower incidence of side effects at the injection site, a shorter treatment period, and better patient compliance.

Database: Medline

24. Postpartum anemia II: prevention and treatment.

Author(s): Milman, Nils

Source: Annals of hematology; Feb 2012; vol. 91 (no. 2); p. 143-154

Publication Date: Feb 2012

Publication Type(s): Journal Article Review

PubMedID: 22160256

Available at Annals of hematology - from SpringerLink

Available at Annals of hematology - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: This review focuses on the prevention and treatment of anemia in women who have just given childbirth (postpartum anemia). The problem of anemia both prepartum and postpartum is far more prevalent in developing countries than in the Western societies. The conditions for mother and child in the postpartum, nursing, and lactation period should be as favorable as possible. Many young mothers have a troublesome life due to iron deficiency and iron deficiency anemia (IDA) causing a plethora of symptoms including fatigue, physical disability, cognitive problems, and psychiatric disorders. Routine screening for postpartum anemia should be considered as part of the national maternal health programs. Major causes of postpartum anemia are prepartum iron deficiency and IDA in combination with excessive blood losses at delivery. Postpartum anemia should be defined as a hemoglobin level of <110 g/l at 1 week postpartum and <120 g/l at 8 weeks postpartum. Bleeding exceeding normal blood losses of approximately 300 ml may lead to rapid depletion of body iron reserves and may, unless treated, elicit long-standing iron deficiency and IDA

in the postpartum period. The prophylaxis of postpartum anemia should begin already in early pregnancy in order to ensure a good iron status prior to delivery. The most reliable way to obtain this goal is to give prophylactic oral ferrous iron supplements 30-50 mg daily from early pregnancy and take obstetric precautions in pregnancies at risk for complications. In the treatment of slight-to-moderate postpartum IDA, the first choice should be oral ferrous iron 100 to 200 mg daily; it is essential to analyze hemoglobin after approximately 2 weeks in order to check whether treatment works. In severe IDA, intravenous ferric iron in doses ranging from 800 to 1,500 mg should be considered as first choice. In a few women with severe anemia and blunted erythropoiesis due to infection and/or inflammation, additional recombinant human erythropoietin may be considered. Blood transfusion should be restricted to women who develop circulatory instability due to postpartum hemorrhage. National health authorities should establish guidelines to combat iron deficiency in pregnancy and postpartum in order to facilitate a prosperous future for both mothers and children in a continuing globalized world.

Database: Medline

25. Comparison for effects of intravenous versus oral iron therapy for postpartum anemia

Author(s): Mumtaz A.; Farooq F.

Source: Pakistan Journal of Medical and Health Sciences; 2011; vol. 5 (no. 1); p. 116-120

Publication Date: 2011

Publication Type(s): Article

Abstract: Objectives: The aim of our study was to compare the effects of intravenous ferrous sucrose versus oral ferrous sulphate on postpartum iron deficiency anaemia. Material and methods: This prospective randomized study was conducted in Obstetrics and Gynaecology Department of Alkhidmat Teaching Hospital Mansoorah Lahore and in the Obstetrics and Gynaecology Department of Akhtar Saeed Trust Hospital in 2009. The study included 80 postpartum patients. The inclusion criteria was Hs<9 gm/dl and serum ferritin of <15 mug/l at 24-48 hours post-delivery. The exclusion criteria was intolerance to iron derivatives, peripartum blood transfusion or a history of asthma, thromboembolism, seizure, alcohol, drug abuse, renal or hepatic dysfunction. Women were divided into two groups consisting of forty patients in each group by randomization. The group I received 2 doses of intravenous ferrous sucrose 200 mg given in day 2 and 4 as an infusion in 100 ml of 0.9% sodium chloride for more than 30 minutes. In group II patients were advised to take 200 mg of ferrous sulphate twice daily together with meals for 6 weeks. Blood samples were measured on day 0, 7, 14 and at 40 days for Haemoglobin levels, hematocrit, red-cell indices, serum ferritin and serum iron levels were measured. All analysis was conducted using SPSS for Windows, version 10.0. Results: On day 7 in group 1, haemoglobin rises from 8.4 to 11 g/dl whereas in group II, Hb rises from 7.8 to 8.3 g/dl. The rise in haemoglobin level is rapid in intravenous group and in the oral group it is a gradual rise but at 40 days the result showed no significant difference in between the two groups. As far as the iron stores are concerned, serum ferritin in group I rose rapidly and remained at higher level where in group II, rise in serum ferritin is comparatively less than the intravenous group. Similarly the results are same in the case of serum iron. Conclusion: Intravenous iron sucrose is efficacious and a successful method for raising the level of iron stores as compared to oral iron supplements.

Database: EMBASE

26. Total infusion of low molecular weight iron-dextran for treating postpartum anemia

Author(s): Daniilidis A.; Giannoulis C.; Pantelis A.; Tantanasis T.; Dinas K.

Source: Clinical and Experimental Obstetrics and Gynecology; 2011; vol. 38 (no. 2); p. 159-161

Publication Date: 2011

Publication Type(s): Article

PubMedID: 21793279

Abstract: Aim: 135 puerperal women with iron deficiency anemia participated in our prospective randomized controlled trial in order to investigate alternative treatments to blood transfusion for anemia. Materials and methods: The criteria for the diagnosis of anemia were Hb < 8 g/dl and ferritine < 10 pg/dl. Women were randomly separated in two groups, A and B. Women of group A (n = 109 women) received a total amount of 1000 mg low molecular weight (LMW) iron-dextran intravenously in two doses. Group B (n = 26) was the control group. They received orally 800 mg daily for 30 days of iron protein-succinylate. Three weeks later women of both groups underwent a full blood count analysis. Results: Hemoglobin and ferritin levels increased significantly in group A compared to group B ($p < 0.0001$). No adverse side-effects due to the treatment were noted in either group. Conclusion: It seems that total iron-dextran infusion is a safe and rapid therapy of iron-deficiency postpartum anemia increases the Hb level more rapidly than oral ferrous sulfate, and it also appears to replenish iron stores more rapidly.

Database: EMBASE

27. Expert recommendations for the diagnosis and treatment of iron-deficiency anemia during pregnancy and the postpartum period in the Asia-Pacific region.

Author(s): Breymann, Christian; Bian, Xu-Ming; Blanco-Capito, Lourdes R; Chong, Christopher; Mahmud, Ghazala; Rehman, Rakhshanda

Source: Journal of perinatal medicine; Mar 2011; vol. 39 (no. 2); p. 113-121

Publication Date: Mar 2011

Publication Type(s): Journal Article Consensus Development Conference

PubMedID: 21070128

Abstract: Anemia during pregnancy and the postpartum period is commonly caused by iron deficiency and is a significant worldwide issue with severe consequences for both mother and developing fetus. From a worldwide perspective, iron-deficiency anemia (IDA) during pregnancy is highest in the Asia-Pacific region; however, there has been little guidance in this region for safe and effective treatment. An expert panel was convened to develop a concise and informative set of recommendations for the treatment of IDA in pregnant and postpartum women in the Asia-Pacific region. This manuscript provides these recommendations and aims to reduce the morbidity and mortality associated with IDA in pregnant and postpartum women in the Asia-Pacific region. The consensus recommendations define anemia as a hemoglobin (Hb) level <10.5 g/dL during pregnancy and <10 g/dL during the postpartum period, and provide cut-off Hb levels to initiate therapy with oral iron, intravenous iron or red blood cell transfusion.

Database: Medline

28. Iron sucrose with and without recombinant erythropoietin for the treatment of severe postpartum anemia: A prospective, randomized, open-label study

Author(s): Krafft A.; Breymann C.

Source: Journal of Obstetrics and Gynaecology Research; Feb 2011; vol. 37 (no. 2); p. 119-124

Publication Date: Feb 2011

Publication Type(s): Article

PubMedID: 21159035

Abstract: Aim: Postpartum anemia is a common problem in obstetrics. Depending on the severity of anemia, it can cause a wide range of symptoms. Obstetrical management should be focused on avoiding blood transfusion in young and otherwise healthy women. The aim of this study was to examine the effectiveness of recombinant human erythropoietin (rhEPO) combined with iron sucrose compared to iron sucrose alone in patients with severe postpartum anemia. Methods: A prospective randomized study was conducted in women with severe postpartum anemia (Hb < 8.5 g/dL). The first group received 200 mg iron sucrose intravenously daily on days 1-4. The second group received 200 mg iron sucrose plus 10.000E rhEPO in the same regimen. Twenty women were enrolled in each group. The follow-up period was two weeks. Results: Baseline Hb was 7.1 g/dL and 7.5 g/dL, respectively, depending on the subgroup. Hemoglobin values increased close to normal values within two weeks in both groups treated with iron sucrose alone or in combination with rhEPO (10.5 g/dL, 10.7 g/dL, respectively). Conclusion: In general, iron sucrose alone is a sufficient anemia therapy agent. A subgroup of patients (i.e. with a more pronounced inflammatory response after cesarean section) may benefit from additional rhEPO therapy. Despite being severely anemic, none of our patients required transfusion. Iron sucrose as well as rhEPO was very well tolerated. The benefit of the therapy lies in the avoidance of allogenic blood transfusions with their potential side effects. In cases of severe anemia after operative delivery, additional rhEPO therapy can result in a faster Hb increase and, therefore, faster recovery. © 2010 Japan Society of Obstetrics and Gynecology.

Database: EMBASE

29. Diagnosis and treatment of iron-deficiency anaemia during pregnancy and postpartum.

Author(s): Breymann, Christian; Honegger, Christoph; Holzgreve, Wolfgang; Surbek, Daniel

Source: Archives of gynecology and obstetrics; Nov 2010; vol. 282 (no. 5); p. 577-580

Publication Date: Nov 2010

Publication Type(s): Journal Article Review

PubMedID: 20577752

Abstract:INTRODUCTIONIron-deficiency anaemia during pregnancy and postpartum occurs frequently and may lead to severe maternal and foetal complications. New treatment regimens include intravenous iron administration in particular clinical situations. The aim of the study was to determine optimal diagnostic and therapeutic approaches to iron-deficiency anaemia during pregnancy and postpartum.METHODSThe evidence from data available from published studies and recommendations regarding diagnosis and treatment were reviewed. As conclusions, recommendations are given by an expert panel.RESULTSDuring pregnancy, oral iron therapy is given as first-line treatment. In cases with lack of efficacy, unwarranted side effects or very low haemoglobin values, intravenous iron treatment with iron carboxymaltose is a preferable alternative, although data regarding safety are limited. In the postpartum period, haemoglobin values less than 95 g/L are treated ideally by intravenous carboxymaltose, leading to more rapid haemoglobin recovery.CONCLUSIONNew intravenous iron preparations such as iron carboxymaltose have an excellent efficacy, side effect profile and advantages as compared to oral iron preparations for particular clinical indications.

Database: Medline

30. Intravenous administration of iron sucrose for treating anemia in postpartum women.

Author(s): Giannoulis, C; Daniilidis, A; Tantanasis, T; Dinas, K; Tzafettas, J

Source: Hippokratia; Jan 2009; vol. 13 (no. 1); p. 38-40

Publication Date: Jan 2009

Publication Type(s): Journal Article

PubMedID: 19240819

Available at Hippokratia - from nih.gov

Abstract:BACKGROUNDTo compare the efficacy of oral and intravenous administration of iron supplements for treating postpartum anemia.METHODSOne hundred and four anemic postpartum women were studied prospectively. The criteria for the diagnosis of anemia were Hb<8 gr/dl and ferritine<10 microg/dl. They were randomised into two groups. Group A consisted of 78 women who received i.v. a total amount of 300 mg iron sucrose in three days. Group B consisted of 26 women, who received orally 800 mg iron proteinsuccinylate daily for four weeks.RESULTSAt the end of the study, in group A the increase of Hb mean level was 4.6 gr/dl and of ferritin mean level was 105 mg/L. In group B the increase in hemoglobin mean level was 2.3 gr/dl and ferritin mean level was 68 mg/L. There was significant difference in the increase of hemoglobin level (p=0.0001) and also in the increase in ferritin level (p=0.0004) between the two groups.CONCLUSIONIntravenous administration of iron sucrose seems to be safe and it helps postpartum women to recover early from anemia.

Database: Medline

31. A 12-week randomised study comparing intravenous iron sucrose versus oral ferrous sulphate for treatment of postpartum anemia.

Author(s): Westad, Stian; Backe, Bjørn; Salvesen, Kjell Asmund; Nakling, Jakob; Økland, Inger; Borthen, Ingrid; Rognerud Jensen, Odd Harald; Kolås, Toril; Løkvik, Bjarne; Smedvig, Eli

Source: Acta obstetricia et gynecologica Scandinavica; 2008; vol. 87 (no. 9); p. 916-923

Publication Date: 2008

Publication Type(s): Comparative Study Randomized Controlled Trial Multicenter Study Journal Article

PubMedID: 18720044

Available at Acta obstetricia et gynecologica Scandinavica - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:OBJECTIVETo analyze the effect of intravenous ferrous sucrose compared with oral ferrous sulphate on hematological parameters and quality of life in women with postpartum anemia.DESIGNOpen randomised controlled trial.SETTINGMulticentre study comprising five obstetrical departments in Norway.POPULATIONHundred and twenty-eight postpartum women with hemorrhagic anemia (Hb between 6.5 g/100 ml and 8.5 g/100 ml). The intervention group (59 women) received 600 mg iron sucrose intravenously followed by 200 mg iron sulphate daily from week 5. The control group (70 women) were given 200 mg iron sulphate daily.METHODSRandomisation and start of treatment occurred within 48 hours of the delivery. Participants were followed up at 4, 8 and 12 weeks.MAIN OUTCOME MEASURESHemoglobin, ferritin and quality of life assessed with the Medical Outcomes Study Short Form 36 (SF-36) and the Fatigue Scale.RESULTSAfter 4 weeks the mean hemoglobin values in both groups were similar (11.9 g/100ml vs. 12.3g/100ml, p=0.89). The mean serum ferritin value after 4 weeks was significantly higher in the intervention group with 13.7 microg/L vs. 4.2 microg/L in the control group (p<0.001). At 8 and 12 weeks the hematological parameters were similar. The total fatigue score was significantly improved

in the intervention group at week 4, 8 and 12, whereas SF-36 scores did not differ.CONCLUSIONWomen who received 600 mg intravenous iron sucrose followed by standard oral iron after four weeks, replenished their iron stores more rapidly and had a more favorable development of the fatigue score indicating improved quality of life.

Database: Medline

32. Erythropoietin and intravenous iron therapy in postpartum anaemia

Author(s): Wagstrom E.; Van Rooijen M.; Larson B.; Bremme K.; Akesson A.

Source: Acta Obstetricia et Gynecologica Scandinavica; 2007; vol. 86 (no. 8); p. 957-962

Publication Date: 2007

Publication Type(s): Article

PubMedID: 17653881

Abstract: Background. We assessed whether recombinant human erythropoietin (rhEPO) enhances a rise in haemoglobin concentration in postpartum anaemia compared to intravenous iron alone. Design. Some 60 patients with haemoglobin values <=80 g/l were randomized within 72 h after parturition into 3 different treatment groups. All 3 groups were given a total dose of 450 mg intravenous iron sucrose. In addition, 2 groups were given 20,000 or 40,000 U of total rhEPO. All treatments were given on 2 occasions with an interval of 3 days (day 0 and 3). Results. Haemoglobin increased significantly in all 3 groups over time ($p<0.001$), and there were no differences between the different treatment groups on any day of evaluation ($p=0.59$). The total mean increment in haemoglobin in all subjects was 18 g/l after 1 week, and 28 g/l after 2 weeks. Conclusion. In comparison to intravenous iron alone, the addition of rhEPO did not further increase haemoglobin concentration in women with postpartum anaemia. © 2007 Taylor & Francis.

Database: EMBASE

33. Intravenous versus oral iron therapy for postpartum anaemia.

Author(s): Bhandal, N; Russell, R

Source: BJOG : an international journal of obstetrics and gynaecology; Nov 2006; vol. 113 (no. 11); p. 1248-1252

Publication Date: Nov 2006

Publication Type(s): Comparative Study Randomized Controlled Trial Journal Article

PubMedID: 17004982

Abstract:OBJECTIVEPostpartum iron deficiency anaemia (IDA) is common in women. Most women are treated with either oral iron supplementation or blood transfusion. Hence, the aim of our study was to compare the effect of treatment with either oral ferrous sulphate or intravenous ferrous sucrose on postpartum IDA.DESIGNA single centre, prospective randomised controlled trial.SETTINGWomen's Centre, John Radcliffe Hospital, Oxford, UK.POPULATIONForty-four women with haemoglobin (Hb) of <9 g/dl and ferritin of <15 microgram/l at 24-48 hours postdelivery.METHODSWomen were randomised to receive either oral ferrous sulphate 200 mg twice daily for 6 weeks (group O) or intravenous ferrous sucrose 200 mg (Venofer; Vifor International Ltd, St Gallen, Switzerland), two doses given on days 2 and 4 following recruitment (group I).RESULTSwere analysed by the Students t-test, chi-square test and analysis of variance.MAIN OUTCOME MEASURESHb, haematocrit, red cell indices, ferritin and serum iron levels were measured on days 0, 5, 14 and 40. Results By day 5, the Hb level in women treated with intravenous iron had risen from 7.3 +/- 0.9 to 9.9 +/- 0.7 g/dl, while there was no change in those treated with oral iron. Women treated with intravenous iron had significantly higher Hb levels on days 5 and 14 ($P < 0.01$) than those treated with oral iron; although by day 40, there was no significant difference between the two groups. Throughout the study, ferritin levels rose rapidly in those treated with intravenous iron and remained significantly higher than in those treated with oral iron ($P < 0.01$).CONCLUSIONSIntravenous iron sucrose increases the Hb level more rapidly than oral ferrous sulphate in women with postpartum IDA. It also appears to replenish iron stores more rapidly. However, this study was not large enough to address the safety of this strategy.

Database: Medline

34. Intravenous versus oral iron for treatment of anemia in pregnancy: a randomized trial.

Author(s): Al, Ragip A; Unlubilgin, Eylem; Kandemir, Omer; Yalvac, Serdar; Cakir, Leyla; Haberal, Ali

Source: Obstetrics and gynecology; Dec 2005; vol. 106 (no. 6); p. 1335-1340

Publication Date: Dec 2005

Publication Type(s): Randomized Controlled Trial Journal Article

PubMedID: 16319260

Available at Obstetrics and gynecology - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Available at Obstetrics and gynecology - from Free Medical Journals . com .

Abstract:OBJECTIVEThe aim of this study was to compare the efficacy of intravenous iron to oral iron in the treatment of anemia in pregnancy.METHODSIn this randomized open-label study, 90 women with hemoglobin levels between 8 and 10.5 g/dL and ferritin values less than 13 microg/L received either oral iron polymaltose complex (300 mg elemental iron per day) or intravenous iron sucrose. The iron sucrose dose was calculated from the following formula: weight before pregnancy (kg) x (110 g/L - actual hemoglobin [g/L]) x 0.24 + 500 mg. Treatment efficacy was assessed by measuring hemoglobin and ferritin on the 14th and 28th days and at delivery, and the hemoglobin on the first postpartum day. Adverse drug reactions, fetal weight, hospitalization time, and blood transfusions were also recorded.RESULTSHemoglobin values varied significantly with time between groups (interaction effect, P < .001). The change in hemoglobin from baseline was significantly higher in the intravenous group than the oral group at each measurement; the changes with respect to subsequent hemoglobin were significantly higher on the 14th (P = .004) and 28th (P = .031) days. Ferritin values were higher in patients receiving intravenous iron throughout pregnancy. No serious adverse drug reactions were observed. Fetal weight and hospitalization time were similar in the 2 groups. Blood transfusion was required for only one patient in the oral group.CONCLUSIONIntravenous iron treated iron-deficiency anemia of pregnancy and restored iron stores faster and more effectively than oral iron, with no serious adverse reactions.

Database: Medline

35. Intravenous iron sucrose complex vs. oral ferrous sulfate for postpartum iron deficiency anemia

Author(s): Dede A.; Uygur D.; Yilmaz B.; Mungan T.; Ugur M.

Source: International Journal of Gynecology and Obstetrics; Sep 2005; vol. 90 (no. 3); p. 238-239

Publication Date: Sep 2005

Publication Type(s): Article

PubMedID: 16043181

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36. Effectiveness of recombinant erythropoietin and iron sucrose vs. iron therapy only, in patients with postpartum anaemia and blunted erythropoiesis

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Abstract: Background. To compare efficacy between recombinant human erythropoietin (rhEPO) plus parenteral iron vs. iron alone (parenteral vs. oral) in postpartum anaemia. Methods. Sixty patients (haemoglobin 8.6 +/- 1 g dL-1) were randomized to rhEPO plus intravenous (i.v.) iron sucrose (group 1), rhEPO placebo plus i.v. iron sucrose (group 2), or oral iron alone (group 3), daily for 4 days beginning 48-72 h postpartum. Erythropoiesis and iron status were assessed before, and on 4, 7 and 14 days after, starting therapy. Results. On day 7 the group 1 haematocrit increase was 7.7 +/- 3.1 vs. 5.3 +/- 1.9 (group 2, $P < 0.01$) and 4.4 +/- 3.2 (group 3, $P < 0.01$), and on day 14, 11.3 +/- 2.9 vs. 9.2 +/- 3.4 (group 2, $P < 0.05$) and 8 +/- 2.8 (group 3, $P < 0.01$). The odds of achieving a target haematocrit > 32 on day 7 and > 35 on day 14 were higher on rhEPO (1.5-2.7) than on either iron regimen alone. Group 1 reticurocyte counts were also higher on days 4 ($P < 0.05$ vs. oral iron) and 7 ($P < 0.01$ vs. oral and parenteral iron). Conclusion. All three regimens were effective in postpartum anaemia, but the haematocrit and reticulocyte responses to rhEPO plus parenteral iron were significantly greater than to iron alone. Benefit was greatest in the blunted erythropoiesis subgroup with elevated post-Caesarean section C-reactive protein levels.

Database: EMBASE

Strategy 355119

#	Database	Search term	Results
1	Medline	(postpartum ADJ2 (anaemia OR anemia)).ti,ab	206
2	Medline	exp ANEMIA/	152154
3	Medline	(anemia OR anaemia).ti,ab	124188
4	Medline	(2 OR 3)	205569
5	Medline	(postpartum OR postnatal*).ti,ab	139883
6	Medline	exp "POSTPARTUM PERIOD"/	57434
7	Medline	(5 OR 6)	181395
8	Medline	(1 OR 7)	181395
9	Medline	(intravenous* ADJ2 iron).ti,ab	2276
10	Medline	exp "ADMINISTRATION, INTRAVENOUS"/	135213
11	Medline	exp "INFUSIONS, INTRAVENOUS"/	52030
12	Medline	(10 OR 11)	135213
13	Medline	exp "IRON, DIETARY"/	2699
14	Medline	(12 AND 13)	28
15	Medline	(9 OR 14)	2289
16	Medline	(8 AND 15)	73
17	EMBASE	(postpartum ADJ2 (anaemia OR anemia)).ti,ab	227
18	EMBASE	exp ANEMIA/	326524

19	EMBASE	exp PUERPERIUM/	55478
20	EMBASE	(18 AND 19)	1377
21	EMBASE	(17 OR 20)	1519
22	EMBASE	((intravenous* OR infusion*) ADJ2 iron).ti,ab	3351
23	EMBASE	exp "IRON THERAPY"/	6999
25	EMBASE	exp "INTRAVENOUS DRUG ADMINISTRATION"/ OR exp "INTRAVENOUS INFUSION"/	368156
26	EMBASE	(23 AND 25)	174
27	EMBASE	exp "IRON COMPLEX"/	3453
28	EMBASE	(25 AND 27)	18
29	EMBASE	(22 OR 26 OR 28)	3461
30	EMBASE	(21 AND 29)	74
31	EMBASE	exp "FERRIC CARBOXYMALTOSE"/	807
32	EMBASE	(25 AND 31)	43
33	EMBASE	(21 AND 32)	1
34	Medline	(IV ADJ2 iron).ti,ab	980
35	Medline	(8 AND 34)	8