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Experience with parenteral iron isomaltoside (Monofer) during postpartum period in Clinical University Centre Sestre Milosrdnice, Zagreb, Croatia

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Objective

The purpose of this study was to show the experience with intravenous iron used during postpartum period in our institution. The WHO defines postpartum anaemia as Hb <100 g/L, however, the level of Hb to define postpartum anaemia has been discussed excessively. Postpartum iron deficiency anaemia is associated with several clinical consequences, most prominently maternal fatigue. To date, iron isomaltoside (Monofer) has been approved in Europe for the treatment of iron deficiency anaemia. Also, it is approved for high single dosing, which is preferable in the treatment of puerperal women. International guidelines for the treatment of iron deficiency anaemia in pregnancy and the postpartum recommend oral iron supplementation in mild anaemia, intravenous iron in moderate anaemia and when oral iron supplementation is not tolerated, and allogeneic red blood cell (RBC) transfusion in severe and symptomatic cases. In this study we therefore tried to determine whether intravenous iron therapy can replace blood transfusions for relieving clinical symptoms of moderate to severe anaemia due to iron deficiency in postpartum. We also noted all of the allergic reactions to parenteral iron as an important part of its adverse drug effects (ADRs).

Methods

We retrospectively identified all women who have given birth between August 1st 2020 and March 31st 2022 and received a dose of parenteral iron isomaltoside in the opstetric department of Clinical University Centre Sestre Milosrdnice. This retrospective observational study included the total of 4147 women who had given birth during this period of which 95 received parenteral iron in the postpartum period. For iron substitution Monofer (iron isomaltoside) in a single maximum dose of 1000 mg was used in all of the cases. The data from our electronical database was used in this study. For statistical analysis student t- test was used. All of the patients signed informed consent.

Results

Of the 4147 women given birth during this 20 month period, the total of 95 women had haemoglobin concentrations in early postpartum (first to fourth day after the labor) between 67 and 84 g/l, with more or less expressed clinical symptoms of fatigue, which makes for 2,3%. Thus these women have been given intravenous iron therapy with iron isomaltoside 500 to correct postpartum iron deficiency anaemia. We divided women who received Monofer in 4 groups. Women who delivered vaginally, via caesarian section, nulliparous and multiparous. The main haemoglobin level in each group is shown. Table 1. Main haemoglobin levels measured postpartum in nulliparous women, t=0,79137, p>0,05 Main Hb level g/L Number of women VAGINAL DELIVERY 76,01 33 C-SECTION 74,45 22 Table 2. Main haemoglobin levels measured postpartum in multiparous women, t=0,14293, p>0,05 Main Hb level g/L Number of women VAGINAL DELIVERY 77,64 11 C-SECTION 77,31 29 At p<0.05, no statistical significance between groups was detected. The anaemia in third trimester is defined as haemoglobin levels <110 g/l. Therefore, we have also divided women in 2 groups, the one with prelabour Hb levels <110 g/l and >110 g/l, respectively. In each group the mode of delivery was observed. Our data showed additional need for transfusion after Monofer application in group with Hgb levels >110 g/L (12.7%), while in other group no transfusion was needed. This suggests that chronic iron deficieny anaemia may have caused better adjustment to acute blood loss. Of the woman who received transfusion 5 gave birth vaginally and 1 with C-section. Three (3.1%) ADRs occurred during parenteral iron administration. One ADR was a mild hypersensitivity reaction, abated spontaneously within a few minutes, and did not recur on rechallenge. Two of those ADRs were severe anaphylactic reactions resulting in anaphylactic shock (difficulty breathing, swelling of the throat). Both of them recieved immediate treatment and recovered. We estimated post haemoglobin concentations 6 weeks after the Monofer therapy, which has been in all of the cases, followed by oral iron therapy 2 weeks after the injection of Monofer. We found significant improvement of haemoglobin levels in all of the patients. Mean postinfusion Hb was 115 g/l.

Conclusion

Clinical decision whether to administrate intravenous iron or transfusion most often depends on the measured haemathological parameters and clinical symptoms such as pallor, dyspnoea, fatigue, presyncope. However, besides this, haemoglobin levels during pregnancy should be considered as well. Women who had chronic anemia during pregnancy, as expected, had a better adjustment to acute blood loss during delivery. Based on data from this study, in women who did not have anaemia in pregnancy the need for transfusion was higher. In this group intravenous iron substitution did not have satisfactory subjective improvement hence required transfusion. Although we had two cases of anaphylactic shock we concluded that the benefits of i. v. iron are still greater than the risks.