Impact of postpartum anemia treatment with intravenous ferric carboxymaltose, intravenous ferric derisomaltose or oral ferrous sulphate on maternal fatigue: a randomized clinical trial

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Abstract

Objective: To compare intravenous ferric carboxymaltose, intravenous ferric derisomaltose and oral ferrous sulphate for treatment of postpartum anemia. **Design:** Single-center, open-label, randomized trial. **Setting**: Tertiary perinatal center. **Population:** Three-hundred women with postpartum anemia (hemoglobin $<$ 100 g/L within 48-hours postpartum) were included between September 2020 and March 2022. **Methods:** Women were randomly allocated to receive intravenous ferric carboxymaltose, intravenous ferric derisomaltose or oral ferrous sulphate. Intravenous iron was given in one or two doses, while ferrous sulphate as two 80 mg tablets once daily. **Main outcome measures:** Primary outcome was maternal fatigue measured by Multidimensional Fatigue Inventory (MFI) six weeks postpartum. Hemoglobin, ferritin and transferrin saturation levels were analyzed as secondary outcomes. Kruskal-Wallis test was used for group comparison ($p<0.05$ significant). **Results:** MFI score at six weeks postpartum did not differ between groups (median 38 (inter-quartile range (IQR) 20-74) in the ferric carboxymaltose, median 34 (IQR 20-70) in the ferric derisomaltose, and median 36 (IQR 20-72) in the ferrous sulphate group; $p=0.26$). Participants receiving oral iron had lower levels of hemoglobin (135 (119-150) vs 134 (113-157) vs 131 (125-137) g/L; $p=0.008$), ferritin (273 (198-377) vs 187 (155-246) vs 24 (17-37) µg/L; $p<0.001$) and transferrin saturation (34 (28–38) vs 30 (23–37) vs 24 (17-37) %; $p<0.001$) than those receiving ferric carboxymaltose or ferric derisomaltose. **Conclusions:** Intravenous ferric carboxymaltose, intravenous ferric derisomaltose and oral ferrous sulphate had similar impact on maternal fatigue at six weeks postpartum despite improved hematological laboratory parameters in the intravenous iron groups.

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