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Case Report

Obstetrics and Gynaecology Section

Severe Anaphylactic Reaction with Ferric Carboxy Maltose: A Case Report

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ABSTRACT

Iron deficiency is one of the commonest nutritional deficiencies among women of child bearing age, in both the developed and developing world. Iron deficiency anaemia is potentially preventable as well as treatable with the use of various iron preparations. Of all the injectable iron formulations Ferric Carboxy Maltose (FCM) has best efficacy and safety profile, however, rare adverse events can occur which should always be borne in mind. The index case is a 30-year-old women G4P2L2A1 attended casualty with bleeding per vaginum. Suction and evacuation was done for incomplete abortion. Patient received FCM after two weeks for moderate anaemia. She developed anaphylactic shock within five minutes of starting the drug. Patient was managed symptomatically with inotropes and blood transfusion. She recovered fully and was discharged well. Reports of severe anaphylactic reactions with the use of FCM are less but not absent thus, judicious and cautious use of the preparation is warranted.

Keywords: Anaphylaxis reaction, Blood parameters, Side effects

CASE REPORT

A 30-year-old women G4P2L2A1, attended emergency department with bleeding per vaginum since one day with history of passage of clots and fleshy mass following two months of amenorrhea. Urine pregnancy test was positive. On general examination, pallor was present. She was afebrile with pulse rate of 98 per minutes, blood pressure of 110/70 mmHg, respiratory rate of 14 per minutes. Respiratory system and cardiovascular system examination were within normal limits. Abdominal examination revealed no abnormal findings. On vaginal examination, internal os was found open, products of conception were felt in the internal os and in the vagina, uterus corresponded to eight weeks size. Ultrasonography revealed retained products of conception inside the endometrial cavity. On investigation, she had B positive blood group with haemoglobin of 8.8 gm%, other investigations were within normal limits. Since, active bleeding per vaginum was seen, immediate suction and evacuation was done under all aseptic conditions. Patient recovered well and was discharged after two days with advice of oral iron 100 mg twice daily.

Patient followed up in Gynaecology Outpatient Department after two weeks with haemoglobin report of 8.7 gm%. She was advised for injection of FCM (one gram) but she decided to take injection at nearby hospital, which she received subsequently. Within five minutes of starting the infusion patient started experiencing severe colicky abdominal pain and difficulty in breathing, tachycardia and hypotension. With the suspicion of anaphylactic reaction, intravenous bolus fluids, injection phenaramine maleate, hydrocortisone and furosemide were given and was started on inotropes due to persistent hypotension and patient was referred to our hospital. She accompanied by the gynaecologist who confirmed the infusion of FCM which led to the adverse events. Urgent physician consultation was done and patient was immediately shifted to intensive care unit for proper management. She was continued on inotropes immediately (injection noradrenaline). Injectable antibiotics (ceftriaxzone, metronidazole) were started. Blood parameters were haemoglobin-7.8 gm%, total leucocyte count-18,900/mm^3, differential leucocyte count-N83/L13/B4/E0, platelet count-3.52 lacs/mm^3, random blood sugar-128 mg/dL, urea-9 mg/dL, creatinine-0.6 mg/dL, bilirubin (total-0.8 mg/dL, direct-0.2 mg/dL), SGOT-50 IU/mL, SGPT-47 IU/mL, INR-1.20. Ultrasonography of whole abdomen revealed normal findings. Two packed cells were transfused on the same day. Inotropes were stopped within 24 hours. Patient gradually improved. Her investigation reports on day two of ICU stay were haemoglobin-10.6 gm%, total leucocyte count-15,300/mm^3, differential leucocyte count-N82/L17/B1/E0, platelet count- 3.29 lacs/mm^3, random blood sugar-109 mg/dL, urea-10 mg/dL, creatinine-0.5 mg/dL, bilirubin (total-0.9 mg/dL, direct-0.2mg/dL), SGOT-54 IU/mL, SGPT-42 IU/mL, INR-0.9. Patient was shifted to ward after two days and was discharged after full recovery. Patient reviewed in Gynaecology Outpatient Department after two weeks, she was in good health with haemoglobin of 13.5 gm%.

DISCUSSION

Anaemia, almost half of which is contributed by iron deficiency anaemia is a global public health problem affecting both developing and developed countries. According to one study in India 84% of pregnant and 92.2% of lactating mothers are anaemic with severe anaemia in 9.2% and 7.3% respectively [1]. Injectable iron preparations are well established modality of treatment for iron deficiency anaemia due to various pathologies. These formulations overcome the problems associated with oral iron and the risk associated with blood transfusion for the treatment of moderate to severe anaemia. Dextran free iron preparations like iron sucrose and FCM are better options with promising results and good safety profile [2,3]. Iron carbohydrate FCM complex with a neutral pH is a stable compound. It allows controlled and slow release of iron thus avoiding chances of toxicity [4]. The efficacy of FCM has been documented in several studies [2,3]. The safety profile of FCM have also been reported in a number of studies in both gynaecological and non gynaecological patients including patients of chronic heart failure and chronic kidney diseases [4-9].

The reported incidence of adverse effects with FCM therapy is between 6.3% and 10.6% [10-12]. The incidence of adverse effects with FCM like pain or discoloration at injection site,

nausea, vomiting, diarrhea, headache, dizziness is comparable to iron sucrose as mentioned by Freidrisch JR et al., in a systemic review of intravenous iron carboxymaltose for iron deficiency anaemia [13]. The most common adverse events reported are pain at injection site, urticarial rash, nausea and headache [2,5,11]. Hypotension has also been reported as one of the uncommon side effects [2,14]. Spontaneous resolution of all the unwanted side effects has been well documented. However, there are limited reports of severe anaphylactic reactions in the literature [15]. One case reported allergy to FCM [16]. In the two primary FCM 750 mg trials, serious anaphylactic/anaphylactoid reactions were reported in 0.1% (2/1775) of subjects receiving FCM [17].

Herfs R et al., reported one patient with pre-existing psoriasis, Hashimoto's thyroiditis and dust allergy who developed severe anaphylactic reaction in the form of generalised rash, nausea, with a drop in blood pressure [15]. However, in the present case there was no history of any significant past medical history or allergy to any known allergens. One case fatality associated with use of FCM has been reported [13].

To the best of our knowledge, this is the first case report of anaphylactic shock in a patient without any significant past medical history or any known allergy who received injection iron FCM.

CONCLUSION

Though, severe anaphylactic reactions with FCM are rare as it has not been utilised at a greater scale and may be due to under reporting, the possibility of life threatening adverse effects with any drug should always be kept in mind. Thus, it is necessary to monitor patients for signs and symptoms during intravenous infusion of FCM and even after administration for at least 30 minutes. It should be given only in a set up where qualified health care personnel and emergency medications for severe anaphylactic reactions are available.

REFERENCES

[1] Agarwal KN, Agarwal DK, Sharma A, Sharma K, Prasad K, Kalita MC, et al. Prevalence of anaemia in pregnant & lactating women in India. J Med Res. 2006;124(2):173-84.

[2] Sharma N, Thiek JL, Natung T, Ahanthem SS. Comparative study of efficacy and safety of ferric carboxymaltose versus iron sucrose in post-partum anaemia. J Obstet Gynaecol. 2017;67(4):253-57.

[3] Bhandal N, Russell R. Intravenous versus oral iron therapy for postpartum anaemia. BJOG. 2006;113(11):1248-52.

[4] Barish CF, Koch T, Butcher A, Morris D, Bregman DB. Safety and efficacy of intravenous ferric carboxymaltose (750 mg) in the treatment of iron deficiency anaemia: two randomized, controlled trials. Anaemia. 2012;2012:172104.

[5] Nunes AR, Costa AP, Rocha SL, Oliveira AG. Efficacy and tolerability of intravenous ferric carboxymaltose in patients with iron deficiency at a hospital outpatient clinic: a retrospective cohort study of real-world clinical practice. Anaemia. 2017;2017:3106890.

[6] Pfenniger A, Schuller C, Christoph P, Surbek D. Safety and efficacy of high-dose intravenous iron carboxymaltose vs. iron sucrose for treatment of postpartum anaemia. J Perinat Med. 2012;40(4):397-402.

[7] Onken JE, Bregman DB, Harrington RA, Morris D, Buerkert J, Hamerski D, et al. Ferric carboxymaltose in patients with iron-deficiency anaemia and impaired renal function: the REPAIR-IDA trial. Nephrology Dialysis Transplantation. 2014;29(4):833-42.

[8] Moore RA, Gaskell H, Rose P, Allan J. Meta-analysis of efficacy and safety of intravenous ferric carboxymaltose (Ferinject) from clinical trial reports and published trial data. BMC Blood Disorders. 2011;11(1):4.

[9] Lim EA, Lee H, Sohn HS, Choi SE. Cost-utility of ferric carboxymaltose (Ferinject®) for iron-deficiency anaemia patients with chronic heart failure in South Korea. Cost Effectiveness and Resource Allocation. 2014;12(1):19.

[10] Seid MH, Derman RJ, Baker JB, Banach W, Goldberg C, Rogers R. Ferric carboxymaltose injection in the treatment of postpartum iron deficiency anaemia: A randomized controlled clinical trial. Am J Obstet Gynaecol. 2008;199(4):435.e1-7.

[11] Breymann C, Gliga F, Bejenariu C, Strizhova N. Comparative efficacy and safety of intravenous ferric carboxymaltose in the treatment of postpartum iron deficiency anaemia. Int J Gynaecol Obstet. 2008;101(1):67-73.

[12] Van Wyck DB, Martens MG, Seid MH, Baker JB, Mangione A. Intravenous ferric carboxymaltose compared with oral iron in the treatment of postpartum anaemia: A randomized controlled trial. Obstet Gynaecol. 2007;110:267-78.

[13] Friedrisch JR, Cançado RD. Intravenous ferric carboxymaltose for the treatment of iron deficiency anaemia. Rev Bras Hematol Hemoter. 2015;37(6):400-05.

[14] Christoph P, Schuller C, Studer H, Irion O, De Tejada BM, Surbek D. Intravenous iron treatment in pregnancy: comparison of high-dose ferric carboxymaltose vs. iron sucrose. J Perinatal Med. 2012;40(5):469-74.

[15] Herfs R, Fleitmann L, Kocsis I. Treatment of Iron deficiency with or without anaemia with intravenous ferric carboxymaltose in gynaecological practices–a non-interventional study. Geburtshilfe Frauenheilk. 2014;74(01):81-88.

[16] Bregman DB, Goodnough LT. Experience with intravenous ferric carboxymaltose in patients with iron deficiency anaemia. Ther Adv Haematol. 2014;5(2):48-60.

[17] Thanusubramanian H, Patil N, Shenoys S, Bairy KL, SarmaY. Adverse Reactions of Ferric Carboxymaltose. Journal of Clinical and Diagnostic Research. 2014;8(10):HD01-HD02.

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