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RESEARCH ARTICLE

A CASE REPORT OF ELEVATED HEPATIC ENZYMES DUE TO FERRIC CARBOXYMALTOSE (FCM): AN ACCIDENTAL FINDING

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ABSTRACT

The most common cause of anemia is deficiency of iron. A number of intravenous iron formulations have been developed. One of the recent addition to the list of available parenteral iron preparation is Ferric carboxymaltose. It is still relatively new in India and is yet to find its place in India for routine use. One clinically important but less common adverse reaction of Ferric carboxymaltose is increase in the Alanine Aminotransferase (ALT) as well as Aspartate Aminotransferase (AST) levels. In our patient we encountered significant increase in the ALT and AST levels after receiving Ferric carboxymaltose therapy.

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INTRODUCTION

The most common cause of anemia is deficiency of iron. According to World Health Organization (WHO) estimate, it affects about 30% of the population worldwide (WHO, 2015). A number of intravenous iron formulations have been developed over the past 65 years which rely on dextran or other compounds to prevent uncontrolled release of free iron to the circulation. High molecular weight dextran was associated with a number of serious adverse reactions and was removed from markets worldwide in 2009. One of the recent addition to the list of available parenteral iron preparation is Ferric carboxymaltose. Ferric carboxymaltose (FCM) injection received FDA approval on July 25, 2013 (Auerbach and Macdougall, 2017). It is still relatively new in India and is yet to find its place in India for routine use (Rathod *et al.,* 2015). Common adverse events include nausea, hypertension, flushing, dizziness, vomiting, injection site discoloration, infusion reaction, anaphylaxis, headache, dysgeusia, hypotension, constipation, abdominal pain, diarrhea, injection-site pain/irritation, rash, paresthesia, sneezing, increased gamma-glutamyl transferase and blood phosphorus level reduction (Cada *et al.,* 2014). One clinically important but less common adverse reaction of Ferric carboxymaltose is increase in the Alanine Aminotransferase (ALT) as well as Aspartate Aminotransferase (AST) levels. Various clinical trials has also shown the same (Seid *et al.,* 2016). In our patient we encountered significant increase in the ALT and AST levels after receiving Ferric carboxymaltose therapy.

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Case History

A 70 years old female patient came to Medicine department with the chief complaints of abdominal pain and vomiting since 2 days. On taking detailed history, the patient was a known case of hypertension and diabetes mellitus type II since 12 years. On laboratory investigation her AST and ALT levels were elevated with increased total bilirubin levels. (AST=125 U/L, ALT=187 U/L, BiliT=3.83 mg/dL, Hb: 9.71 g/dL). She was diagnosed as a case of hepatitis and started the treatment for the same. When the laboratory investigations are repeated after 2 days of commencing the treatment, AST=50 U/L, ALT=144 U/L, BiliT=1.56 mg/dL, Hb=7.2 g/dL. Patient was recovering as far as the hepatitis is concerned. Patient was diagnosed to be suffering from iron deficiency anaemia on the basis of lab investigations. She was started Inj. Ferric carboxymaltose 1 gm as slow intravenous (IV) infusion in Normal Saline (N.S) over the period of 2 hours for the same. After a day of transfusion when laboratory investigations were repeated there was a significant rise in the liver enzyme profile along with serum bilirubin levels (AST=74 U/L, ALT=260 U/L, BiliT=2.97 mg/dL). A diagnosis of adverse reaction due to Ferric carboxymaltose was done. The duration of hospital stay increased due to the same.

After treating the patient for a week laboratory investigations were repeated. There was significant improvement (AST=32 U/L, ALT=43 U/L, BiliT=0.9 mg/dL). Patient was discharged with advice for weekly follow up. Patient is better since then.

DISCUSSION

Ferric carboxymaltose is a colloidal iron hydroxide in complex with carboxymaltose, a carbohydrate polymer that releases iron.FCM represents an important new therapeutic modality that offers significant clinical benefit, and thereby can reduce morbidity and mortality from many pathological conditions associated with iron deficiency (Friedrisch *et al.,* 2016). Increase in the liver enzymes (ALT and AST) is an important adverse effect of Ferric carboxymaltose in 1% of treated population (Bregman *et al.,* 2014). This is potentially serious and possibly under recognized side effect of Ferric carboxymaltose therapy. Because the routine use of this iron preparation is still not common in India it is important to know about its serious adverse reaction. The mechanism of this adverse reaction is unclear. In our patient the elevation in liver enzymes was predominated by ALT levels which is already documented in various studies. The patient was already suffering from hepatic impairment before starting the therapy which accidently lead to detection of this adverse reaction on follow up investigation. So, in the patients with known hepatic impairment one should be cautious in using Ferric carboxymaltose.

REFERENCES

Auerbach, M. and Macdougall, I. 2017. The available intravenous iron formulations: History, efficacy, and toxicology. *Hemodialysis International,* 21: S83-S92. doi: 10.1111/hdi.12560

Bregman D.B., Goodnough L.T. 2014. Experience with intravenous ferric carboximaltose in patients with iron deficiency anemia. *Ther Adv Hematol.,* 5(2):48–60.

Cada DJ, Levien TL, Baker DE. 2014. Ferric Carboxymaltose. Hospital Pharmacy, 49(1):52-59. doi:10.1310/hpj 4901-52.

Friedrisch JR, Cançado RD. 2015. Intravenous ferric carboxymaltose for the treatment of iron deficiency anemia. *Revista Brasileira de Hematologia e Hemoterapia,* 37(6):400-405. doi:10.1016/j.bjhh.2015.08.012.

Rathod S, Samal SK, Mahapatra PC, Samal S. 2015. Ferric carboxymaltose: A revolution in the treatment of postpartum anemia in Indian women. *International Journal of Applied and Basic Medical Research,* 5(1):25-30. doi:10.4103/2229-516X.149230.

Seid MH, Mangione A, Valaoras TG, et al. 2006. Safety profile ofiron carboxymaltose, a new high dose intravenous iron inpatients with iron deficiency anemia [abstract no. 3739]. *Blood*, 2; 108 (11 Pt 2): 8b.

WHO, 2015. Micronutrient deficiencies: Irondeficiency anaemia. Available at: http://www.who.int/nutrition/topics/ida/en

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