

Original Research Paper

NEAR FATAL ANAPHYLACTIC SHOCK FOLLOWING IRON SUCROSE INJECTION FOR THE TREATMENT OF ANAEMIA

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Abstract

Iron deficiency anaemia is the most common cause for anaemia in pregnancy which is recognised as a major global health problem, affecting nearly half of all pregnant women. Oral iron replacement is usually adequate, but intolerance to oral iron and noncompliance may make it inadequate. Intravenous Iron sucrose is beneficial in these patients. Although iron sucrose has a safety profile, this report highlights the possibility of fatal anaphylaxis to iron sucrose in a pregnant woman with severe iron deficiency anaemia. A 28 year old primigravida at 29weeks 4days was admitted on 6th December 2012 in our hospital with severe anaemia for further management. she was transfused with 4 pints of packed red blood cells followed by parenteral iron sucrose on 15th Dec 2012 to which patient developed anaphylactic shock renal failure and pulmonary edema.

.Key Words: Anaemia, Anaphylaxis, Iron sucrose, Pregnancy

INTRODUCTION

Iron deficiency remains the commonest medical disorder in pregnancy in the developing world with deleterious effects on both mother and the fetus^[1]. In India the incidence varies from 40-90%. Iron deficiency anaemia is responsible for 95% of all anaemias during pregnancy. It accounts for 20% of maternal deaths and to a significant proportion of perinatal losses. Factors producing iron deficiency anaemia generally precedes pregnancy, which includes diet poor in iron content coupled with rapid succession of

pregnancies without iron supplementation, added with poverty and illiteracy among people in developing countries^[2]. Traditionally iron deficiency anemia is being treated with oral iron, iron dextran, iron sorbitrate and Blood transfusion which is reserved for severe cases. Blood transfusion has its own hazards, including transfusion of wrong blood, anaphylaxis, cardiac failure, pulmonary edema, and maternal death. Also there is a risk of transmitting deadly infections like HIV, CMV, hepatitis. Parenteral iron corrects iron deficiency in short duration and replenishes iron stores better than oral iron

but are associated with short term side effects including anaphylactic reactions^[3].with the introduction of second-generation intra venous iron formulations, iron sucrose is clearly an improvement over iron dextran. This is proved to be effective in the management of iron deficiency anaemia and is claimed to be not associated with the serious allergic reactions encountered with intra venous iron dextrans^[4].

Case report:

A 28 yr old primigravida with 29weeks 4 days gestation referred with severe anaemia not in cardiac failure to the department of obstetrics on 6/12/2012. On examination her vitals were stable, had severe pallor, with facial puffiness and pedal edema. Examination of cardiovascular and respiratory systems revealed no abnormality. Uterine size was corresponding to the gestational age. Investigations showed Hb: **4.9g/dl**; PCV: **13.1%**; RBC: **1.15million/cumm**; platelets: 71,000/cumm, peripheral blood smear suggestive of microcytic hypochromic anaemia. She was transfused with 4 pints packed red blood cells on alternate days and her repeat Hb on 14/12/12 was 9.5g/dl. For replenishing iron stores, it was decided to administer iron sucrose. On 15/12/12 100mg iron sucrose in 200 ml normal saline infusion was started after giving test dose. As soon as the total dose was started at 12.30pm, patient developed sudden angioneurotic edema, hypotension and anaphylactic shock. Pt was immediately shifted to ICU and intubated with difficulty because of

angioneurotic edema and was put on SIMV mode of mechanical ventilation. She was transfused with 2 pints FFPs as her coagulation profile was deranged. At 8pm, patient developed pulmonary edema which was treated with diuretics. As there was persistent hypotension, patient was started on inotropes. On 16/12/2012 9.00am, Pulse was 140bpm, Blood pressure maintained at 120/70mmHg with inotropes, on auscultation of lungs bilateral crepitations were present and urine output was 20ml in 24 hours,Ultrasonography showed intrauterine fetal death. Patient's attenders preferred to go to higher centre for further management. There she was evaluated, found to have high WBC counts but her blood cultures were negative. She developed acute renal failure requiring hemodialysis.

She was resuscitated with intravenous fluids and was put on inotropes. She was also started on broad spectrum antibiotics and planned for dialysis.Patient had vaginal delivery of a dead female fetus on 17/12/12 at 8.30 am after induction of labour with tab.misoprostol. Patient was extubated on 21/12/12. She received 6 cycles of hemodialysis, last cycle was on 31/12/12. Her general condition improved and was discharged in good health.

Discussion:

Iron deficiency anemia is a major health problem worldwide, but responds well to iron supplementation. Parenteral iron therapy is recommended where oral iron therapy is ineffective due to malabsorption and non compliance. An

important advantage of intravenous iron sucrose over oral iron is that it may bypass hepcidin actions by directly loading transferrin and making iron available to macrophages. And also it is very effective in improving haemoglobin levels within 4 weeks^[3,4,5].

As the severity of anaemia increases, the response to iron sucrose also increases proportionately, because once the iron deficiency is established in tissues, the serum transferrin concentration increases in direct proportion to degree of iron deficiency^[3,6]. In 2005 FDA approved iron sucrose for the treatment of iron deficiency anemia in patients undergoing chronic hemodialysis receiving supplemental erythropoietin therapy. But it has to be used during pregnancy only if clearly needed, as there are no adequate and well-controlled studies in pregnant women and is Category B drug^[7].

All parenteral iron preparations are reported to have adverse effects. The immunological basis of allergic hypersensitivity reaction is not known. The most common adverse reactions are hypotension, bradycardia, chest pain, nausea, vomiting, diarrhea, abdominal pain, headache, fever, allergic reactions. Iron sucrose appears to have favourable safety profile and is very rarely associated with anaphylactic reactions with the reported prevalence of 0.002%^[8,9]. But Fatal anaphylactic reactions with the use of iron sucrose have been reported^[6,8].

Our patient developed severe anaphylactic reaction soon after starting total dose in spite of administering test dose, developed multiorgan dysfunction requiring treatment in an intensive care unit and haemodialysis. but fortunately she survived.

In conclusion,

- Even though iron sucrose is marketed as least anaphylactic parenteral iron molecule, the clinicians should be vigilant regarding the possibility of anaphylactic reaction while administering iron sucrose and must treat promptly to avoid dreaded complications.
- Both the government and non governmental agencies must develop strategies to prevent anaemia during pregnancy.
- Iron supplementation to the adolescents girls, maternal education and food fortification can help to bring down the prevalence of anaemia during pregnancy and to achieve safe motherhood.

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