(INJ. IRON SUCROSE) INDUCED ANAPHYLACTIC SHOCK – A DETAILED CASE REPORT

Abstract

Background: Anemia is the leading cause of disability worldwide, and many groups of patients need iron supplementation (e.g. patients with renal failure, those with inflammatory bowel disease, and pregnant women among others). Intravenous iron administration is an effective method of treating iron deficiency anemia, but there have been concerns about adverse side effects, particularly serious events such as anaphylactic reactions. Anaphylaxis is a serious life-threatening and systemic allergic or hypersensitivity reaction with immediate onset. Management of anaphylaxis in pregnancy is similar to that in nonpregnant women. The recommendations for the management of acute anaphylactic episodes include immediate cessation of the triggering factors, airway and BP support, prevention of hypoxia with 100% oxygen, aggressive fluid resuscitation with normal saline, and various medications, such as epinephrine, antihistamines, and corticosteroids.

Case Presentation: A 21-year-old female patient $G_3P_2L_2$ with 8MA with anemia. Given Anaemia (Hb:8g/dl) patient went to a local hospital and Inj. Iron Sucrose was given. After 2 hours of Injection patient developed Angioedema, Headache, Vomiting, and Giddiness. After basic supportive management, she was sent to a district hospital where supportive management was given. Given worsening of blood pressure she was brought to SVIMS for further evaluation and management. The patient presented to the Emergency Medicine department with complaints of facial (lip) swelling, neck swelling, shortness of breath-grade II-III NYHA, and profuse sweating.
On general examination, her BP was found to be decreased i.e. 90/50 mm of hg and her pulse rate was 110 beats per minute.

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Laboratory Examinations revealed decreased levels of Hb, RBC, PCV, MCV, MCH, Lymphocytes, and Serum potassium. Her WBC, ESR, and Neutrophil count were found to be increased. The patient was diagnosed with Iron Sucrose (Inj.) induced Anaphylactic Shock. Inj.HYDROCORTISONE-100mg-IV-STAT, Inj.AVIL-25mg-IV-STAT, Inj. EMESET-4mg-IV-STAT, Inj.PANTOP-40mg-IV-STAT was given to treat the patient.

Conclusion: Our findings suggested that Hypersensitivity reactions to IV iron are rare but potentially life-threatening. They are at least partly preventable by the implementation of risk minimization measures. Their management requires prompt recognition and grading of severity, together with meticulous monitoring and immediate treatment.

Keywords: Iron Sucrose, Anaphylactic shock, Maternal and Foetal outcomes, Angioedema, low blood pressure.

I. INTRODUCTION

The major reason of disability worldwide is Anemia, and numerous patients like geriatrics, pediatrics, including those with Kidney failure, IBD, and women who are pregnant, need to take iron supplements [1]. When used orally, iron supplements can cause stomach upset and be hard to tolerate.[2,3,4]Iron deficiency anemia can be effectively treated with intravenous iron infusion, although some people worry about serious adverse effects including anaphylactic response. There are multiple intravenous iron formulations available in the market, but very few studies have compared their relative risk of adverse effects. [5]

Anaphylaxis is a potentially fatal, systemic allergy or hypersensitivity event that occurs suddenly [6]. Anaphylaxis is estimated to affect 0.05% to 2% of the population [7] Pregnancy-related anaphylaxis is extremely unusual, yet it can have devastating effects on both the pregnant woman and the unborn child [8,9]. Anaphylaxis during pregnancy is a rare occurrence. It is distinguished by a life-threatening generalized hypersensitivity reaction that often results hypotension in mother and/ormorbidity in developing baby. IgE-mediated reactions to substances such as meals, medications, latex-based substances or insect poison frequently result in hypersensitivity. [10]

Anaphylaxis during pregnancy is managed by the same way as it is in normal women. The guidelines for treating acute anaphylactic episodes include stopping the triggers right away, maintaining airway and blood pressure, preventing low oxygen levels by providing complete oxygen support, Using fluids to revive with normalnacl solution, and giving medicines like epinephrine, anti-histamine, and corticosteroids [11].In the present scenario, A pregnant female with iron deficiency anemia had reported an allergic response to iron sucrose.

II. CASE REPORT

A 21-year-old female patient with G3P2L2 and 8MA anemia. Since the patient was anemic, (Hb:8g/dl) she was taken to a nearby medical facility for iron sucrose injections. Two hours after receiving the injection, the patient had developed symptoms like angioedema, headache, vomiting, and giddiness. She was moved to a district hospital after receiving basic supportive care..She was brought to SVIMS for additional assessment and treatment because of a dip in her blood pressure. When the patient arrived to the ER, he complained of swelling on the face, lips and neck, difficulty in breathing (grade II-III NYHA), and heavy sweating. According to reports, the patient became hypersensitive on administration of Iron sucrose injection.

Upon general examination, it was discovered that her B.P was lower, at 90/50 mmHg, and her pulse rate was 110. According to lab results, Hemoglobin, Red blood cells, packed cell volume, Mean-cell-volume, MCH, lymphocytes, and serum potassium levels were all low. Her white blood cell (WBC), Erythrocyte Sedimentation rate (ESR), and neutrophil count were all elevated. On a regular basis, urine microscopy indicated the existence of pus cells, epithelial cells, and red blood cells. A Hypersensitive reaction (Anaphylactic Shock) due to Iron Sucrose (Inj.) was identified.

U/S whole abdomen: ANTENATAL SCAN: uterine foetus -single, live

PARAMETERS (DECREASED)	OBSERVED VALUE
HB	9.2g/dl
RBC	4.04 million cells/cumm,
PCV	32.6%
MCV	81fl
MCH	23 pg
LYMPHOCYTES	2%
SERUM.POTASSIUM	3.1 mmol/l.

PARAMETERS (INCREASED)	RECORDED VALUE
WBC	17,300 cells/cumm
ESR	58 mm/1st hour
NEUTROPHILS	94%

III. ADVERSE DRUG REACTION MANAGEMENT

On the first day, the patient complained of swelling on face, lips and neck, Dyspnea (SOB) GRADE II-III NYHA, and excessive perspiration. According to reports, the patient became hypersensitive to iron sucrose injections. Her heart rate and blood B.P were discovered to be 140 beats per minute and 80/40 mm hg, respectively, for which she was given the following medicine.

- Injection-HYDROCORT -100mg-Intra venous route-STAT,
- Injection- CPM-25mg-Intra venous route-STAT,
- Injection- ONDANSETRON-4mg-Intra venous route-STAT,
- Injection-PANTOPRAZOLE-40mg-Intravenous route-STAT.
- On Day-2, the patient complained of Angioedema, headache, vomiting, and shortness of breath, palpitations, and giddiness. Her blood pressure was 83/36 mmHg and her pulse rate was 118 beats per minute. She was given the drugs listed below.
- Injection .EPINEPHRINE -2Ampoules+ 50CC NS @on flow 5 cc/hr,
- Intra venous Fluids 1 bottle RL, DNS @ 100 ml/hr,
- Injection-HYDROCORT-200mg-IV-QID, then titrated to 100 mg.
- Injection-.CPM-2CC-IV-SOS,
- Injection-.RANTIDINE-IV-BD,
- Injection-DEXAMETHASONE-2CC-IV-SOS,
- Injection-.AMOXY CLAV-1.2gm-IV-BD,
- Injection-.ONDANSETRON-4mg-IV-SOS,
- Tablet- CETRIZINE -5mg-BD.
- On Day-3, there were no new concerns. Her B.P, P.R, and R.R were 90/40 mmHg, 110 BPMand 40CPM, respectively. She has given the followingdrugs
- Injection-.HYDROCORT-100mg-Intravenous-4 times daily,

- Injection-EPINEPHRINE-3Ampoules+ 50CC NS @on flow 5 cc/hr
- Tablet-CETIRIZINE-10mg-twice daily,
- Inj.ONDANSETRON-4mg-Intravenous-(when needed)
- IVFLUIDS-2 bottles DNS, 1 bottle RL@75CC/hr,
- Injection-AMOXY CLAV-1.25gm-IV-BD,
- Injection-RANTIDINE-150mg-IV-BD,
- Injection-CPM-2CC-IV-(when needed),
- Injection-DEXAMETHASONE-2CC-IV-SOS for tachycardia, tachypnea, and hypotension.
- She developed pallor on the fourth day. Her B.P and P.R were 110/50 mmHg and 125 bpm, respectively.
- Injection-Adrenaline was withdrawn, and
- Injection-NOR ADRENALINE-2amp+50 ml NS@5ml/hr was started.
- She had no new concerns on fifth day. Her H.R, B.P, and R.R were 102BPM, 98/50 mmHg, and 30 cycles per minute, respectively.
- On day 6 there are no new complaints, same treatment was continued and Syrup.HAEMOPLUS-15ml-OD was added.
- As a result of conservative treatment, the patient's symptoms improved. The patient had no anaphylactic symptoms and was discharged from the hospital in a hemodynamically good condition with the following care recommendations
- SYP.HAEMOPLUS-15ml-OD.

IV. DISCUSSION

Pregnant women are expected to experience anemia at a rate of 38.5 to 44.8% globally and 42.9 to 53.5% in South-East Asia. Iron deficiency is thought to be responsible for 50% of all anemia cases in pregnancy. According to reports, between 35 and 76% of pregnant women in countries with developing economies have iron-deficiency anemia; while this incidence is on average just 18% in industrialized ones. [12],[13]. In individuals with iron deficiency anemia, parenteral iron therapy is advised when oral iron therapy is inadequate due to malabsorption. [[14]. Iron therapy in IV route cures iron deficient anemia significantly more quickly and safely than given in oral iron route [15]. Short-term adverse reactions of all known iron formulations for parenteral administration include metallic taste, back pain, nausea, vomiting, diarrhea, abdominal pain, hypotension, and allergic or anaphylactic reactions [16]. Anaphylaxis clinical presentations include shortness of breath, discomfort in the chest, Swelling (angioedema), urticaria with hypotension, and are frequently quick, severe, and occur along with the initial dosage of iron given in IV route.[17]

In the present case, an unwanted drug reaction occurred after few hours of administering the infusion of the initial dose of iron sucrose, indicating hypersensitivity rather than acute dose-related damage. According to the above data, the patient in our study became hypersensitive to iron sucrose injection.

V. CONCLUSION

According to the current study, allergic reactions to Intravenous iron are infrequent but potentially lethal. These can be avoided in part by implementing risk-mitigation techniques. Their management necessitates rapid recognition and severity rating, as well as

careful observation and prompt treatment. All professionals involved in the administration of iron infusions must get continual training to make sure that when these unusual occurrences occur, they are addressed professionally and quickly.Following early treatment for anaphylaxis, mother and foetal outcomes were favourable in this case.

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