ORIGINAL ARTICLE

Efficacy of Intravenous Iron Sucrose in the treatment of adult patients of Iron Deficiency Anemia

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ABSTRACT

Aim: To check intravenous Iron Sucrose efficacy in the treatment of Iron Deficiency Anemia subjects.
Methods: 6o subjects with 18 to 65 years of age were included in this prospective study among which 45 were females and 15 males. Pretreatment peripheral blood smear and serum ferritin levels were performed for all patients. Iron sucrose was given as 200 mg in 100 ml normal saline as intravenous infusion over 30 minutes daily at DHQ tertiary care hospital, Kohat till completion of total calculated dose of iron sucrose. Additional 500 mg of iron sucrose was also given by intravenous infusion in normal saline to all patients to replenish iron stores.
Results: The pretreatment average Hb level and Serum ferritin level in female patients was 9 g/dl and <12 ug/dl and in male patients average Hb level and ferritin level was 10 gm/dl and <12 ug/dl. Post treatment average Hb level and Serum ferritin in females patients was 13 gm/dl and 89ug/dl and in male patients 14gm/dl and 95ug/dl respectively. Data was analyzed by SPSS version16.
Conclusion: Intravenous iron sucrose remedy is efficacious in the treatment of IDA patients.
Key words: Iron deficiency Anemia, Anemia, Iron Sucrose.

INTRODUCTION

The most common disorder in the world is IDA. It affects almost 25% of the world`s population[1]. Common treatment of IDA for most patients is oral iron therapy due to its safety and low cost. Its efficiency is limited in most patients due to GIT toxicity i.e. 35% to 59%[2]. In the presence of blood losses, poor intestinal absorption fails to compensate for iron need[3].

METHODOLOGY

This study was performed at DHQ tertiary care hospital, Kohat from September 2016 to June 2017. Informed consent was taken from all patients. All patients with 18 to 65 years of age with IDA were included in the study. Patients were selected according to the criteria of IDA: hemoglobin (Hb) level < 12.0 g/dl for women and < 13.0 g/dl for men, serum ferritin (SF) level < 12 µg/L. Patients with H/O allergy to iron sucrose, evidence of iron overload and acute or chronic bacterial infection were excluded from study. 60 subjects were diagnosed and included in the study. A total dose of iron was calculated by formula:

Iron requirement (mg)=Body wt.(kg)x(Target Hb in gm% - Actual Hb in gm%)x 2.4.

Peripheral blood smear and serum ferritin levels of all patients were done before treatment as a baseline. Iron sucrose was given as 200 mg in 100 ml normal saline by intravenous infusion for 30 minutes daily. Peripheral blood smear and serum ferritin levels of all patients were again performed after 30 days of initial treatment as Post treatment values.

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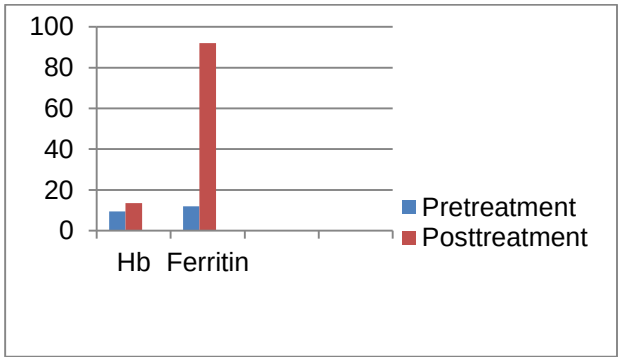
RESULTS

The detail of results is given in table 1.

Table 1: Hemoglobin and ferritin levels before and after treatment

Patent characteristic	Haemoglobin (g/dl)	Serum ferritin (µg/L)
Pretreatment	9.5±1.40 (7.0—10.5)	12.0 ±6.6 (1—16)
Post-treatment	13.5 ±1.49 (9.0---14.5)	92.0±79.0 (5.3—383)
P value	P< 0.01	P< 0.01

Fig.1: Hemoglobin and ferritin levels before and after treatment



DISCUSSION

In this study, the pretreatment average Hb level and Serum ferritin level in female patients was 9 g/dl and <12 ug/dl and in male patients average Hb level and ferritin level was 10 gm/dl and <12ug/dl. Post treatment average Hb level and Serum ferritin in females patients was 13 gm/dl and 89ug/dl and in male patients 14gm/dl and 95ug/dl respectively. All patients responded to IV iron therapy and anemia was corrected in about 70% of the subjects.

In one study, there is high ratio of toxic effects related to this therapy, when using ferrous sulphate compounds[3]. In another study by Munoz et al[4], Intravenous iron therapy has been indicated in subjects with intolerance for oral iron as well as severe anemia followed by significant bleeding, inflammatory disorders and in patients with IDA having emergency surgery.

Important indication for parental iron is because of gastrointestinal side effects[5]. Availability of iron is decreased in gastric surgery causing decreased food intake and duodenum bypass. There is also Increased iron loss from ulcers at the anastomotic sites[6]

In another study, parental iron sucrose is a safe and effective remedy in the treatment of IDA patients[7]. Iron sucrose due to its rapid removal from the plasma and thus iron is available for process of erythropoiesis. After a bolus dose of iron sucrose, blood level occurs in 10 minutes. 24 hours after administration, the blood level is very low. This shows rapid bone marrow uptake[8].

Iron sucrose is best tolerated without toxic effects and with minimum allergic reactions.[7] So parental iron sucrose may be the recommended remedy of IDA in many clinical problems i.e., during pregnancy, postpartum,[9] bowel disease,[10] cancer diseases[11], hemodialysis patients[12].

CONCLUSIONS

Parental use of iron sucrose is an effective method in the treatment of patients with IDA who do not tolerate oral iron therapy.

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