INTRAVENOUS IRON IN CHRONIC ANEMIC PATIENTS OF HAEMORRHOIDS

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ABSTRACT: CONTEXT: AIMS: Comparison between intravenous iron sucrose & oral ferrous fumarate in chronic anaemia due to chronic haemorrhoids.

SETTINGS AND DESIGN:

METHODS AND MATERIAL: This study was conducted on 30 patients with chronic anaemia with Hb from 4.4 – 8 gm/dl. The patients were randomized into two groups. Group 1 consisted of 15 patients who received 300-600 mg of intravenous iron sucrose every alternate day for 3 days. Group 2 consisted of 15 patients & were given 300 mg of ferrous fumarate orally daily for 14 days.

Statistical analysis used:

RESULTS: After 14 days in group 1 the Hb increased by 2.8 gm/dl in comparison to 1 gm/dl in group 2.

CONCLUSIONS: The results show that use of intravenous iron sucrose increases Hb level more rapidly than oral therapy in chronic anaemic patients of haemorrhoids without any side effects.

KEY-WORDS: Chronic anaemia, iron sucrose, ferrous fumarate.

KEY MESSAGES:

INTRODUCTION: The prevalence of chronic anaemia in haemorrhoid patients is quite common because of chronic bleeding. This leads to morbidity such as lethargy, tiredness, dizziness. Anaemia is usually due to chronic and excessive bleeding in haemorrhoid patients comparing to haemoglobin formation by body. Blood transfusion is often required for severe cases or oral iron medication is added for increasing haemoglobin along with measures to stop further bleeding.

Oral iron can cause some side effects like constipation, which is not good for haemorrhoids, nausea and gastric irritation which effects compliance. Blood transfusion gives quick results but have higher chances of infections like hepatitis B & C, HIV. Due to this intravenous iron therapy has been considered an alternative as now available iron sucrose is very safe and hardly have any side effects. Hence the main aim of this study is to compare effectiveness of intravenous iron sucrose versus oral ferrous fumarate in anaemic patients.

Subjects and Methods: The study was randomized & performed at Dept. of surgery in S G T medical college, Gurgaon. The study included 30 patients in the age group of 35-65 years with Hb in range of 4.4-8 gm. The patients were randomized into two groups as per their Hb level. After approval of ethical committee of college and taking consent from patients 15 patients were selected in group 1 and 15 patients were included in group 2.

Treatments: Group 1 received 300-600 mg of intravenous iron in two or three divided doses given every alternative day for 3 days. The dose was calculated by formula as

$$\text{Total iron dose in mg} = 2.4 \times \text{wt} \times \text{deficit}$$

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Wherever Wt is weight of patient and deficit is target Hb-actual Hb in gm%. The target Hb was fixed at 10 gm/dl as we can plan the patient for surgery at this level. Total dose required was administered as 100-200 mg iron sucrose as single dose repeated 3 times a week. Iron sucrose was diluted in 250 ml of normal saline and administered slowly in 2 hours. This group did not receive any further iron supplementation.

In group 2: Patients received 300 mg ferrous fumarate capsules once a day for 2 weeks which provided 99 mg of elemental iron. Compliance was confirmed by pill count carried out after 14 days.

Lab procedures: On day 0 all patients were examined clinically and complete blood count was done. All the patients were investigated after 7 and 14 days.

Statistical analysis: By other studies it was observed that with iron sucrose Hb level increase by 25% by day 5. All analysis were conducted by spss version 18.0. The groups were compared by the student's t test.

RESULT: Out of 30 patients all completed the treatment well in 2 weeks. The baseline characteristics of the patients in two groups were similar (table 1). Hb level increased from baseline in both groups at days 7 and 14. By day 7 mean Hb level increased significantly in both groups from 5.8 ± 1 to 7.2 ± 1.022 gm/dl in group 1 and $7.12 \pm .5$ to $7.6 \pm .517$ gm/dl in group 2. On day 14 increase in mean Hb level in group 1 was 2.8 gm/dl in comparison to 1 gm/dl in group 2. Patients in group 1 was significantly having higher mean Hb values on days 7 and 14 ($p=0.1668$) than patients in group 2.

No serious side effects were reported in either of the groups intravenous or oral. But minor side effects like nausea, metallic taste, flushing of face, burning at injection site were seen in 5(33%) patients in group 1. Whereas group 2 complained of gastrointestinal, epigastric and abdominal discomfort and constipation was reported by 6(40%) patients. Compliance was observed to be very good by pill count and history of black stools in oral group.

Characteristics	Group 1 N=15	Group 2 N=15	P value
Age	45 ± 7.19	49 ± 11.77	.2709
Weight	66 ± 8.7	67 ± 5.8	.7139
Hb @ start	5.8 ± 1	$7.12 \pm .50$	.0001

Table 1: Baseline characteristics of patients at recruitment.

Plus – minus value are mean $\pm$ sd.

Hb g/dl	Group 1	Group 2	P VALUE
DAY 0	5.8+_1	7.12+_5	.0001
DAY 7	7.2+_1.0226	7.62+_5171	.1668
DAY 14	8.6+_9913	8.12+_4959	.1046

TABLE 2: Results after treatment with iron

Plus – minus values are mean +_ SD

DISCUSSION: Developing world is suffering a lot of iron deficiency anaemia. Blood loss in haemorrhoid patients is a chronic problem as they delay their arrival to a specialist and frequently visits quacks. The study was done to find out whether administering i v iron sucrose results in higher Hb concentration than oral iron in these patients with chronic anaemia.

The results indicate that 300-600 mg of i v iron on alternate days for 3 times in a week significantly increase Hb level by 1.4 and 2.8 gm/dl within 7 and 14 days from baseline. Iron sucrose is very effective as it is rapidly removed from plasma and used for Erythropoiesis. These findings are supported by study done by Broche et al (10) in which Hb increase by 1.9gm/dl in 7 days & 3.1 gm/dl in 14 days.

In this study i v iron sucrose was well tolerated and no serious side effects were reported. The reason of high tolerance was due to lower allergic effects and sucrose has very low release of elementary iron from the complex. This observation is in accordance with previous studies that have investigated the safety profile in i v iron sucrose.

Blood banks are always under pressure to provide safe and sufficient blood components for clinical use and due to this alternative for blood transfusion is the need of today. I v iron sucrose allows blood transfusion to be avoided in chronic anaemic patients and this blood can be used for other patients.

CONCLUSION: Results suggests that i v iron sucrose increase Hb level more rapidly than oral ferrous fumarate in chronic anaemia patients of haemorrhoids without side effects and this can avoid blood transfusion in patients.

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