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Original Research Article

EFFICACY OF MORINGA OLEIFERA IN TREATING IRON DEFICIENCY ANEMIA IN WOMEN OF REPRODUCTIVE AGE GROUP

Sindhu S[1], Mangala S[2*], Sherry B[3]

***Dr.Mangala Subramanian, Professor of Community Medicine, Vydehi Institute of Medical Sciences and Research Centre**

1& 3–Final year MBBS students, Vydehi Institute of Medical Sciences and Research Centre

ABSTRACT:
Iron deficiency anaemia (IDA) is most prevalent among Indian women in reproductive age from lower socio economic strata and 80% of women with anaemia suffer from IDA. This study was done with the intention of finding efficient substitutes in the form of non haem iron of vegetable origin i.e. Moringa oleifera leaves (drumstick) and jaggery to treat anaemia. Women belonging to lower socio-economic strata in suburban/rural Bangalore aged 15-45 were the target group. A simple random sampling of 60 women suffering from IDA was taken where 30 women were assigned to the intervention group and 30 to the control group. Diagnosis of anaemia was done using Tallqvist's haemoglobin scale. The intervention group was then given a therapy which consisted of 100gm of Moringa oleifera and jaggery (dry weight) in a ratio of 80:20 for thirty days. The inhibitors of iron absorption (milk, phytates, and tannins) were not taken along with the supplements. After thirty days the haemoglobin levels were analysed again and recorded. The results were analysed based on percentages and proportions. Student's t test was used to find out any significant difference between intervention and the control group. At the end of the supplementation period (30 days), the women in intervention group showed an increase in haemoglobin level. By the Student's t test, the post intervention data is highly significant,t=4.109 (P <0.001).This study shows that Moringa oleifera with jaggery has significantly improved haemoglobin levels of anaemic women. This can be promoted in the community for women with iron deficiency anaemia. Further studies with larger samples maybe performed to corroborate the above data.

Keywords: Moringa oleifera, iron deficiency anaemia, women, reproductive age

INTRODUCTION:

Iron deficiency anaemia is one of the most widespread preventable nutritional problems in the world, despite the continuous implementation of global programs for its control.

Globally 50% of anaemia is attributed to iron deficiency and accounts for approximately 841,000 deaths annually worldwide[1]. In India alone 80% of women are iron deficient, both pregnant and non-pregnant[2]. It is also the most neglected of disorders since it does not have any typical presentation unless the iron deficiency is severe. Also this can be attributed to the ignorance and the tendency to underestimate their problems.

Some of the common causes of iron deficiency are inadequate intake, chronic or

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acute blood loss, malabsorption, hookworm infestation and menstruation.

Clinically it usually presents with pallor, fatigue, reduced capacity to work, cheilosis, and koilonychia.

Diagnosis maybe based on various methods such as measuring the haemoglobin levels, serum iron levels and total iron binding capacity[2].

It is also known that haem iron which is more commonly present in animal products is absorbed more easily than the non haem iron present in the plant products which is a predominant part of the diet in India. It has been noted in several studies that iron absorption is generally inhibited and enhanced by certain other foods[2, 3]. Common foods known to inhibit iron absorption are tea, coffee, milk[4-6]. Enhancers of iron absorption are ascorbic acid, amino acids and sugars[7-15].

Iron deficiency anaemia is the most prevalent disorder among Indian women in the reproductive age (15 to 45yrs) from the lower socio economic strata. In Bangalore 39%of the women were found to have anaemia of which 95% were iron deficient[16]. There is a paucity of literature regarding the beneficial effects of Moringa oleifera and jaggery in treating iron deficiency anaemia[17]. Therefore the present study was taken up with the objective of studying the effect of vegetable source in the form of Moringa oleifera and jaggery in improvement of women suffering from iron deficiency anaemia.

MATERIALS AND METHODS

The study was set in rural and suburban Bangalore.

The design was an interventional study with simple random sampling in which 60 women from the lower socioeconomic strata (Class IV and V of BG Prasad's classification) in the reproductive age group participated. Women in the age group between 15 to 45 years and haemoglobin levels between 8 to 10.8 grams were included. Pregnant women, lactating women and women with haemoglobin levels below 8gms were excluded from the study.

The study was conducted over a period of 3 months, from April to June, 2012.

According to WHO criteria mild anaemia ranges from 11- 11.9gms,moderate anaemia from 8-10.9 grams and severe anaemia is less than 8gms.[2]

In this study the target group consisted of women with moderate anaemia.

Diagnosis was based on Dr. Tallqvist haemoglobin scale[18]. 60 women were selected and were divided into intervention and control group (30 each). Intervention group was given 100gm/day of Moringa oleifera and Jaggery (dry weight) in the ratio of 80:20 for thirty days. Control group was advised to continue normal diet. Inhibitors of iron absorption (milk, phytates, and tannins) were not taken along with the supplements or the diet by both the groups. After thirty days the haemoglobin levels were analysed again and recorded.

Analysis was based on percentages and proportions. Student's t-test was used to find out any significant difference between intervention and control group.

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RESULTS

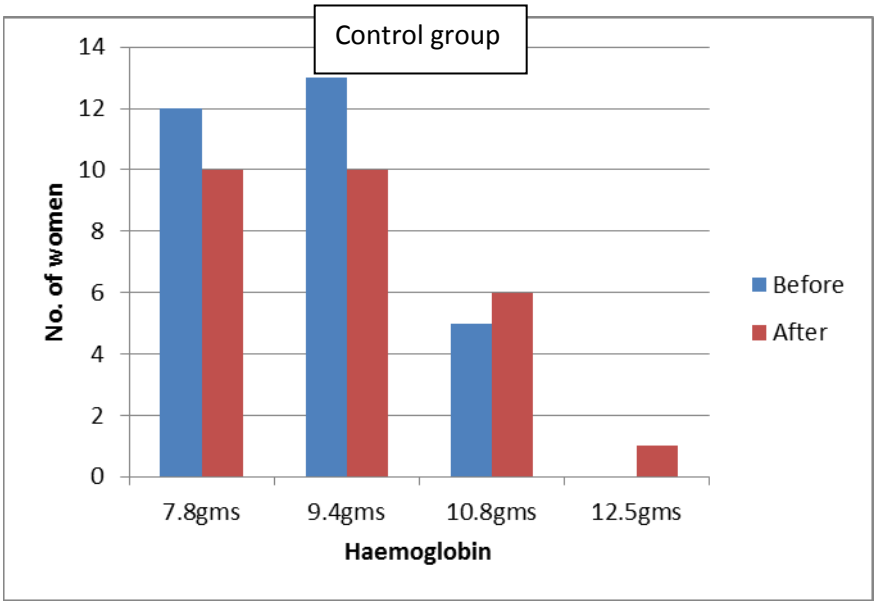
The women were analysed at the end of supplementation period and the data obtained was as follows.

In the control group of the 30 women who participated only 3 showed improvement while 3 dropped out of the study and the rest i.e. 24 women showed no change at all.

In the intervention group of 30 women, 23 showed improvement, 2 dropped out of the study and 5 showed no improvement.

Data was analysed using unpaired Student's t-test, where the value for t was found to be 4.109.

($p<0.001$)



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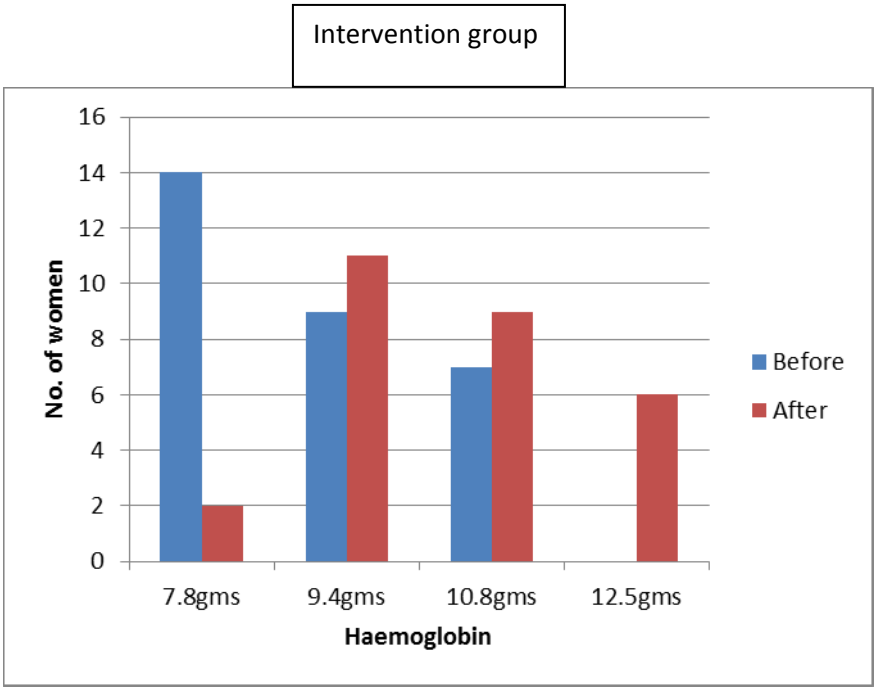

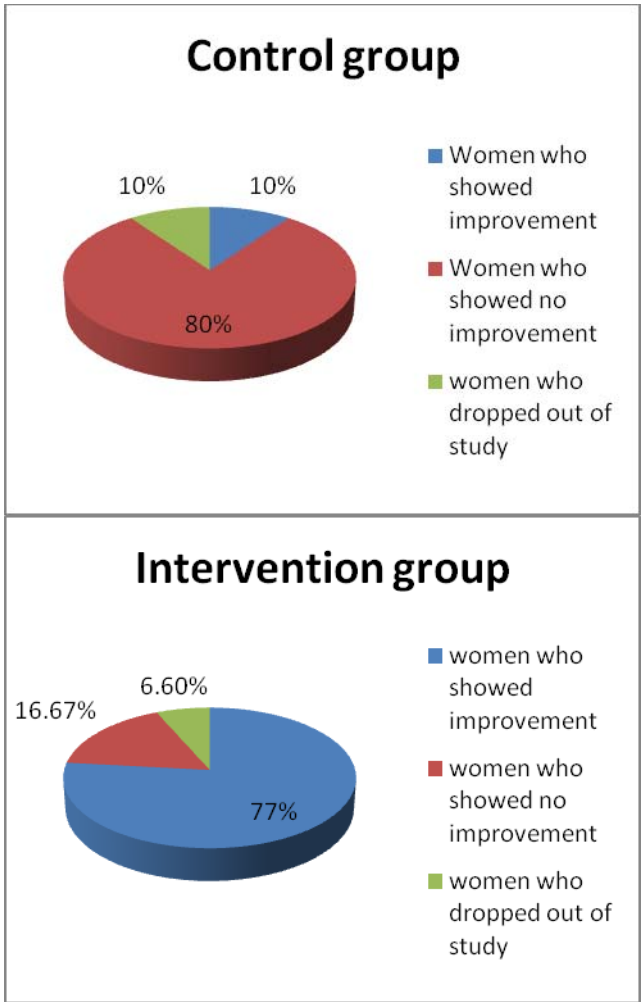

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DISCUSSION

There are not many studies conducted which can pinpoint the beneficial effects of Moringa oleifera on anaemia. Moringa oleifera has been known from ancient times and has been used by our ancestors as a cure for numerous ailments[19]. There have been two other large scale studies conducted in Senegal, Africa which points to Moringa as a potential medicinal plant.

In one of the studies moderately anaemic lactating women were randomly chosen and were given a weekly dose of 100gms of Moringa oleifera powder as opposed to iron and folic acid (120 mg and 0.5mg) of the control group. After 3 months of therapy there was a significant rise in haemoglobin levels ($p<0.001$) but iron stores were unchanged. The protein in the Moringa oleifera prevented any loss of weight in the women. However the study concluded that Moringa oleifera being a locally available food must be utilised more effectively instead of the locals relying on supplements and fortified food for the essential nutrients.[20]

In another study conducted in Senegal on HIV positive patients and effect of Moringa oleifera on their hemogram profiles it was concluded that Moringa oleifera is capable of correcting the moderate iron deficiency anaemia and may be regarded as an effective nutritional supplement and would allow improvement of nutritional status, accelerate immunological recovery and reinforce effectiveness of antiretroviral drugs on HIV patients[21].

The present study also concludes that Moringa oleifera effectively corrected haemoglobin levels in moderately anaemic women. It should be given due consideration and included in the daily diet as a preventive and maintenance strategy.

Moringa oleifera grows abundantly in the Asian and the African continent. These are the areas which are plagued by droughts and are developing or underdeveloped. The women of these areas where food and medical care is hard to come by should be able to easily supplement their diets with the dry and powdered Moringa. Moringa when added to food does not change the smell or taste perceptibly and may be mixed with the normal diet and ingested.

CONCLUSION

The present study shows that the haemoglobin levels of the women in reproductive age group showed a significant improvement post intervention with Moringa oleifera and jaggery. This may be promoted in the community as a prophylactic and a dietary supplementation in anaemic women.

Conflict of interest- nil

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