



Effect of Supplementation of Mulberry Leaf Powder on The Hemoglobin Levels of The Selected Adolescent Girls

M. Manju Vani

Research Scholar, Dept. of Home Science, Sri Padmavathi Mahila Viswavidyalayam, Tirupati

ABSTRACT

Iron is an essential element for blood production. About 70% of our body's iron is found in the red blood cells of our blood called hemoglobin. Hemoglobin is essential for transferring oxygen in our blood from the lungs to tissues. If the blood is deficient with hemoglobin it leads to a condition called "anemia" characterized by tiredness and lethargy, shortness of breath, heart palpitations and pale complexion. Hemoglobin levels can be improved through iron supplementation either through drugs (or) diet. Diets rather than drugs commanded central attraction in treating anaemia. In spite of drug therapy, management by diet is still the backbone of the control of many deficiency disorders. The present study was undertaken to assess the supplementation of mulberry leaf powder to the selected adolescent girls. The sample consists of 200 randomly selected adolescent girls from one government high school and junior college in Tirupati, out of which 60 subjects were in control group and 60 subjects were in experimental group. It is clearly evident from the results that the hemoglobin levels of the experimental group of subjects has shown a significant difference when compared to the control group tells that, mulberry has the function of improving the hemoglobin levels and helps in nourishing the blood.

KEYWORDS :

INTRODUCTION:

Anemia is the most common disorder of the blood with it affecting about a quarter of people globally. Iron deficiency anemia affects nearly one billion. It is more common in females than in males, among children during pregnancy and in the elderly. Anemia increases costs of medical care and lowers a person's productivity through a decreased ability to work. Treatment for iron deficiency anemia usually involves taking iron supplements and changing diet to increase iron levels, as well as treating the underlying cause.

Adolescence is a "coming of age", as children grow into young adults. These teen years are a period of intense growth, not only physically, but also mentally and socially. During this time, 20% of final adult height and 50% of adult weight are attained. "Adolescent girls also face a greater risk of nutritional problems than adolescent boys, including anaemia and underweight. In addition, over half of girls aged 15-19 (56 per cent) are anaemic," said the UNICEF report. Because of this rapid growth, adolescents are especially vulnerable to anemia. Proper nutrition, including adequate iron intake, plays an important part of your teenager's growth and development. During adolescence, teenagers will acquire the knowledge and skills that will help them to become independent, successful young adults. Iron deficiency and iron deficiency anemia can affect this learning and development. Hence the present study was undertaken with the following objectives.

OBJECTIVES OF THE STUDY:

To assess the nutritional status and to see the effect of supplementation of mulberry leaf powder on hemoglobin levels of the selected adolescent subjects.

MATERIALS & METHODS:

The experimental study was carried out with 200 adolescent girls selected randomly, out of which 60 subjects were considered as experimental and 60 subjects were in control group. Initially the nutritional status of 200 anemic subjects was assessed with a help of well designed questionnaire for assessing the knowledge on nutritional intake by 24 hour recall method. The experimental subjects were given 30gms of mulberry leaf powder and are advised to mix the dietary supplement either with plain water, butter milk even in foods like breakfast items, snacks, soups etc for a period of two months. For every 15 days blood hemoglobin levels were analyzed using the hemoglobin estimation kits. The data was analyzed using SPSS (13.1 version) means, standard deviation, independent sample student t-test, paired t-test was used to know the significant difference between the experimental and control groups.

RESULTS & DISCUSSION:

As per the objectives of the study the sample study consists of adolescent girls in the age group of 14 to 18 years. 80% of the samples were

anemic in the present study. Majority of the samples were low income group (50%), remaining 50% subjects belongs to middle and high income groups. The daily dietary intake was collected by 24hours recall method and it was noted that the consumption of iron rich foods was poor because of poverty and lack of nutritional awareness.

Table No 1: Mean Hemoglobin levels of the selected NIDDM patients of control and experimental groups

S. No	Group	Test	Hb (g/dl) Normal Value: Men:13.5-16.5(g/dl) Women: 12.1-15.1(g/dl)	N	S.D	t- value	p- value
1.	Control Group	Initial	9.16	60	2.37	1.72	0.09
		Final	8.83	60	1.96		
2.	Experimental Group	Initial	8.64	60	1.73	11.78	0.00**
		Final	11.11	60	1.66		

**** Significant at 1 percent level**

The hemoglobin levels of the selected adolescent subjects are represented in table no.1 and in fig no.1 shows no significant changes in the hemoglobin levels of control group. In the experimental group after supplementation the mean hemoglobin levels significantly increased from 8.64 ± 1.73 to 11.117 ± 1.66 g/dl where the final level is nearer to the normal range, it is clearly understood that mulberry leaf powder supplementation helps in maintaining proper hemoglobin improvement and helps in immunological properties of the body.

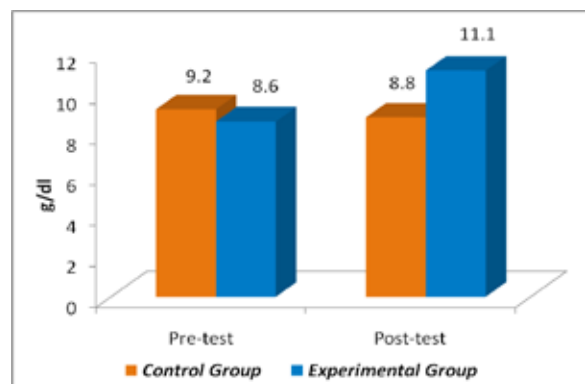


Fig : 1 Changes in the Hemoglobin levels of the selected adolescent girls .

CONCLUSION:

The approach to the dietary treatment of anemia and the therapeutic implications of mulberry has been illustrated in many investigations. Mulberry is an excellent source of iron which is an important characteristic feature that contains 1.85 mg/100g of mulberry leaf powder (about 23% of RDI). Iron being a component of hemoglobin cells determines the oxygen carrying capacity of the blood. Anemic people not only adolescent girls irrespective of age, gender can take mulberry as a supplement to get rid of anemia.

RECOMMENDATIONS:

Instead of drug therapy for anemia, there are certain natural herbs without side effects and also with low cost can combat the nutritional deficiency disorders like anemia. Among such herbs, mulberry also can be used for human consumption apart from sericulture.

Mulberry farming helps the mulberry farmers not only in sericulture but also generates income as it can be used from human consumption.

REFERENCES

1. Calis JC, Phiri KS, Faragher EB et al. (2008). "Severe anemia in Malawian children". *N. Engl. J. Med.* 358 (9): 888–99. doi:10.1056/NEJMoa072727. PMID 18305266. | 2. Dreyfuss ML, Stoltzfus RJ, Shrestha JB et al. (2000). "Hookworms, malaria and vitamin A deficiency contribute to anemia and iron deficiency among pregnant women in the plains of Nepal". *J. Nutr.* 130 (10): 2527–36. PMID 11015485. | 3. Rangarajan, Sunad; D'Souza, George Albert. (April 2007). "Restless legs syndrome in Indian patients having iron deficiency anemia in a tertiary care hospital". *Sleep Medicine.* 8 (3): 247–51. doi:10.1016/j.sleep.2006.10.004. PMID 17368978. | 4. Stephen J. McPhee, Maxine A. Papadakis. *Current medical diagnosis and treatment 2009* page.428. | 5. Brady PG (October 2007). "Iron deficiency anemia: a call for". *Southern Medical Journal* 100 (10): 966–967. doi:10.1097/SMJ.0b013e3181520699. PMID 17943034. Retrieved July 23, 2012. | 6. National Institutes of Health. "Dietary Supplement Fact Sheet: Iron". United States of America, Department of Health and Human Services. Retrieved March 8, 2012. | 7. "Mortality and Burden of Disease Estimates for WHO Member States in 2002" (xls). World Health Organization. 2002. | 8. Miyahara C, Miyazawa M, Satoh S, Sakai A, Mizusaki S: Inhibitory effects of mulberry leaf extract on postprandial hyperglycemia in normal rats. *J Nutr Sci Vitaminol* 50:161–164, 2004 | 9. Chen F, Nakashima N, Kimura I, Kimura M: Hypoglycemic activity and mechanisms of extracts from mulberry leaves (folium mori) and cortex mori radices in streptozotocin-induced diabetic mice. *Yakugaku Zasshi* 115:476–482, 1995 | 10. Andallu B, Suryakantham V, Srikanthi BL, Reddy GK: Effect of mulberry (*Morus indica* L.) therapy on plasma and erythrocyte membrane lipids in patients with type 2 diabetes. *Clin Chim Acta* 314:47–53, 2001.