

## IRON NUTRITIONAL STATUS, PATHOLOGICAL AND CLINICAL IMPLICATIONS OF WOMEN IN THE REPRODUCTIVE AGE FROM RURAL AREA

Chinnari Harika, V. and Sunita, K.\*

Dept. of Foods and Nutritional Sciences, Acharya Nagarjuna University,  
Guntur, A.P.,India

Received on 04-02-2010, revised on 11-04-2010, accepted 25-05-2010

---

### ABSTRACT

The aim of the present investigation is to describe the iron nutritional status and clinical implications of women in the reproductive age from rural area. The records from the pinhead showed that there are about 800 women in the age group of 18-45 yrs. Out of these 800 women, a sample size of 90 members were taken for this study. These women were divided into two groups i.e., <35yrs and >35yrs, clinical and pathological assessment was recorded.

**Key words :** Epidemiological study, Iron nutrition, Pathological implications, Clinical aspects.

### INTRODUCTION

Iron is essential for the oxygen carrying capacity of haemoglobin and myoglobin as well being a component of many enzymes which are liquids for the adequate functioning of brain cells, muscle cells and the cells of immune system. Iron deficiency is the most common nutritional disorder in the developing world. It affects the liver of many millions of human beings through out the life cycle especially young children and women of reproductive age. Iron deficiency is usually the most common cause, other common contributory factors being deficiencies of folic acid, B<sub>12</sub>, Vitamin A and genetically determined hemoglobinopathies (UNICEF, 1998).

Iron deficiency anemia (IDA) is a common nutritional problem world-wide, particularly for women of reproductive age in developing countries. It is estimated that 90% of all anemic individuals are to be found in developing countries, among the developing countries highest prevalence is voted in South Asia . In India the rational level prevalence of anemia amongst pregnant women was reported to be 87% (Demayer and Tegman, 1985).

### MATERIALS AND METHODS

The records from the pinhead showed that there are about 800 women in the age group of 18-45 yrs. Out of these 800 women a sample size of 90 members

---

\*Dept. of Zoology, Acharya Nagarjuna University, Guntur - 522 510, A. P., India.

## Chinnari Harika, V. and Sunita, K.

were taken for the study. These women were divided into two age groups i.e., <35 and 35-45 years. For this study two villages were selected. Clinical examination is the most important part of nutritional signs and symptoms of dietary deficiencies present among the people. Dietary and nutritional intakes were taken using 24 hours recall method; data was collected on the dietary consumption of subjects.

The subjects were given two bowls (a small and a big size), which are standardized in the department and food intakes of both liquids and solids were measured; the consumption was noted down in terms of those bowls, meant for measuring larger quantities like rice and the small cup for measuring small quantities like vegetables. The quantities of raw food consumed per day were determined. And the nutrients like calories protein, calcium, iron, oxalic acid, vitamin-C and folic acid were calculated using food consumption table (ICMR, 1989).

### RESULTS AND DISCUSSION

Iron is an essential trace element for the formation of Hb of red cells of blood and plays an important role in transport of O<sub>2</sub>. IDA is the most important and wide spread nutritional deficiency disorder in the developing countries affecting women, children and also adult men. WHO (1986) reported that iron deficiency is caused mainly by inadequate dietary intake.

**Table 1:** Percentage of women with different clinical symptoms in the reproductive age group (18-45yrs).

S.No	Clinical aspects	< 35yrs(n=47)	>35yrs (n= 43)
1.	<b>Tongue</b>		
	Normal	40%	20%
	Pale	59%	79%
2.	<b>Eyes</b>		
	Pale	59%	97%
	Night blindness		
	Bitot's spots		
	Xerophthalmia		
	Normal	40%	16%
3.	<b>Nails</b>		
	Normal	6%	6.5%
	Pale	54%	76%
	Brittle	21%	11%
	Spoon shaped	10%	4%

**IRON NUTRITIONAL STATUS, PATHOLOGICAL AND CLINICAL  
IMPLICATIONS OF WOMEN IN THE REPRODUCTIVE AGE FROM  
RURAL AREA**

5.	<b>Feet</b> Cracks Normal	72% 27%	65% 34%
6.	<b>Menstrual status</b> Irregular Normal Water operated  <b>Duration of periods</b> 5 days < 5 days > 5 days  <b>Abdominal pain</b> Yes No  <b>Back pain</b> Yes No  <b>Vomiting</b> Yes No  <b>Giddiness</b> Yes No	42% 51% 6%  38% 48% 6%  48% 51%  48% 40%  12% 87%  17% 82%	41% 30% 27%  27% 44% ...  32% 67%  76% 23%  27% 72%  23% 76%
7.	<b>Delivery</b> Normal births Abortions Still births	57% 6% 36%	39% 4% 32%

In clinical aspects tongue seems to reveal the changes that occur due to the nutrient deficiency (Iron, Riboflavin, Vitamin B<sub>12</sub>, Niacin, Folic acid etc.). 59% of the women were <35 years of age and 79% were >35 years of age group had pale tongue, and 40% in the younger age group and 20% in higher age group had normal tongue, change in eye such as pale, dry and scaly at corners, night blindness, bitot's spots. Xerophthalmia and night blindness could occurs due to deficiency of micro nutrients like iron, vitamin A, Riboflavin, vitamin B<sub>6</sub>, Niacin etc. 59% in <35 yrs age group and 7.5% in >35yrs age group showed pale eyes but 40% in <35yrs age group and 16% in >35yrs age group show normal eyes.

*Bulletin of Pure and Applied Sciences. Vol.29A(No.1)2010*

**Chinnari Harika, V. and Sunita, K.**

Changes in nails such as brittle, ridged, spoon shaped, pale nails form due to iron and calcium deficiency. Only 6% & 6.5% of the women in both the age groups show normal nails. Rest of them had pale nails in 54% & 76%, brittle nails in 21% & 11% and spoon shaped nails in 10% & 4%.

Changes in gums such as swollen, bleeding could take place due to vitamin C and B complex deficiency. 4% in < 35yrs age group and 41% in >35yrs age group show bleeding of gums where as 95% in <35yrs and 58% in >35yrs have normal gums. Changes in feet such as cracks could take place due to vitamin-A deficiency, 72% in <35yrs and 65% in >35yrs show cracks and 27% in <35yrs & 34% in >35yrs have normal feet.

42% in <35yrs and 41% in >35yrs reported irregular periods. 51% in <35yrs and 30% in >35yrs reported to have normal menstrual status where as it is stopped in 6% in <35yrs and 27% in >35yrs age group. 38% in <35yrs and 27% in >35yrs have reported bleeding time period of 5 days, 48% in <35yrs and 44% in >35yrs reported bleeding time period of <5 days and 6% in <35 yrs reported bleeding time period of >5 days. In the present study the women who reported irregular periods may be due to inadequate diet with iron deficiency, lack of B-complex vitamins and harmful defects. In this study 6% of women <35yrs have stopped their menstrual cycle due to operation and ulcer clots etc. 48% and 32% of women are suffering from abdominal pain at the time of menstrual periods due to hormonal imbalance, iron deficiency etc. 51% in <35yrs and 67% in >35yrs reported to have no abdominal pain. 12% in <35yrs are 27% in >35yrs reported to have vomiting. 87% in <35yrs 72% in >35yrs are normal with no vomiting. 17% in <35yrs and 23% in >35yrs have reported giddiness and 82% in <35yrs and 76% in >35yrs were normal.

57% in <35yrs and 39% in >35yrs reported to deliver normal births; 6% in <35yrs and 4% in >35yrs, the babies were aborted where as 36% in <35yrs and 32% in >35yrs reported to deliver still births.

Physiological conditions including growth and pregnancy in women (ICMR, 1989) need iron intake. Thus adequate amount of iron must be obtained from the diet in order to replace the obligatory iron losses from the body to provide for growth until adult hood is reached.

**Table 2:** The Nutrient intakes of the women in the age groups <35 yrs and >35yrs.

Age	Iron(mg)	Folic acid(µg)
<35 yrs	9.15	181.9
>35yrs	9.23	189
RDA	30	100

## IRON NUTRITIONAL STATUS, PATHOLOGICAL AND CLINICAL IMPLICATIONS OF WOMEN IN THE REPRODUCTIVE AGE FROM RURAL AREA

The mean intake of iron is 22.4mg per day in females and 24.8mg per day in males. Iron intake in the present study is much lower than the RDA (Recommended Dietary Allowance); also according to NNMB data (22mg) the consumption of iron is lower than the RDA (30mg). In the present study the mean consumption of folic acid in <35yrs age group is 181.9 $\mu$ g and 189 $\mu$ g in >35yrs age group of women. In both the group the mean consumption of folic acid is above the RDA (100 $\mu$ g).

The major approach to control IDA is the medical supplementation with iron and folic acid and food based approaches i.e., dietary diversification and fortification of foods iron cereal based flours such as wheat and maize to counter parasitic infestation (Helen, 1997).

### CONCLUSION

The present clinical implications are more in women and personal hygiene is also important. In this study iron intakes are very poor. So iron intake can be improved by consuming iron rich foods and iron fortified supplements.

### ACKNOWLEDGEMENTS

The authors express their sincere thanks to the Head of Department of Foods and Nutrition for providing the required facilities and giving valuable suggestions.

### REFERENCES

1. Demaeyer, E. and Adiels-Tegman, M. (1985). The prevalence of anemia in the world. *World Health stat*, 38: 302-316.
2. Helen, Keller.(1997).International Indonesia, Iron Deficiency Anaemia in Indonesia Report, The Policy Worksop, Jakarta, April 1-2.
3. ICMR Task Force Study,(1989). Filed supplementation trail in pregnant women with 60mg, 120mg and 180mg of iron with 500mg of folic acid. Indian Council of Medical Research, New Delhi.
4. UNICEF funded final report of Research Project, (1998). Effectiveness of daily iron and weekly iron and folic supplementation in anemic adolescent girls. Bombay Urban ICDS Project 21-25.
5. World Health Organization, 1986. Young peoples' health – A challenge for society WHO technical Report Series No. 731, WHO, Geneva, Switzerland.