

Iron Nutritional Status among the Elderly of Fishing Community of Nellore District

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Abstract: Ageing is associated with increased risk of developing anaemia and micronutrient deficiencies. The present study was examined to know the nutritional status among the elderly of fishing community of Nellore district. A sample of 100 (50 males and 50 females) in the age group of 51-70 years were selected randomly from the fishing communities of the Nellore district. The iron status of the subjects of the fisherman community was assessed by estimating Haemoglobin levels (Hb), Packed cell volume (PVC), Serum Iron (SI), Total Iron Binding Capacity (TIBC), Percent Transferrin saturation (% TS) and Serum Ferritin levels. Based on the results pertaining to Iron status parameters in the present study, it can be stated that a good percentage of subjects in the fishing community do suffer from iron deficiency anemia.

Keywords: Anemia, Micronutrient, fishing community, elderly

1. Introduction

Iron is widely distributed throughout the body. The functions of iron are very vital. It is involved in three major functions. The delivery of oxygen for the sustenance of life is accomplished by haemoglobin and myoglobin, which contains iron as an intrinsic component. As a constituent of cytochrome, iron is also needed for cellular respiration. It is involved the detoxification of lethal peroxide species formed in the tissues. Iron is a co factor of many enzymes like cytochrome, catalase and peroxidases, which carry out several vital functions in the body. The human body contains between 3 and 4 g of iron, of which, about 70 percent is present as circulating iron and the rest as storage iron. On an average the iron content is about 3.8g in adult man and 2.3g (Swaminadhan 2005). The iron containing compounds in the body are grouped into two categories.

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The first category is functional, showing enzymatic functions consisting primarily of haem proteins, which are involved in oxidative metabolism. The second category is the non- haem iron associated with iron storage, transport and certain enzymes. The revised Recommended Dietary Allowance (RDA) for Indians (ICMR 2010) of iron for male is 17 mg/day and for females 21 mg/day. Nutritional anaemias are considered to be one of the most common nutritional disorders of the world and widespread in developing countries. India faces a major challenge for caring of the elderly over 60 years of age and whose number has been increasing. The dietary practices that may decrease iron bioavailability and hence iron stores in the body, include low intake of ascorbic acid or high intakes of calcium and decreased consumption of highly available iron from meat, fish and poultry. It is difficult to estimate the prevalence of iron deficiency in elderly persons, because impaired iron status can be the result of iron deficiency or chronic disease. Iron deficiency or iron excess may impair health. Although iron stores appear to increase with advancing age, signs of iron deficiency and low body stores still occur in the developed countries (konadia et.al 2016). Iron deficiency anemia ia aproblem of serious public health significance. Prolonged iron

deficiency leads to iron deficiency anemia. The prevalence of anemia is high among the rural areas of Andhra Pradesh the fishing community is one that is poor and neglected. In view of this the present study was taken up on fishing community to assess the Iron nutritional status of elderly.

2. Objective

To estimate Haemoglobin, Packed cell volume, Serum Iron, Total Iron Binding Capacity, Percent Transfer in Saturation and serum ferritin levels in order to assess the iron nutritional of the fishing community.

3. Methodology

The sample of the study comprised of 100 elderly men and women (50 Men and 50 women) of the fishing community in the age group of 51 to 70 years. General back ground information of the total sample was recorded. It includes occupation, literacy, economic status, family size, non-nutritional habits and obstetric history of women subjects. The methods followed to assess the iron status included Haemoglobin- cyanmethemoglobin method (Dacei and Lewis, 1984), Packed Cell Volume – Wintrobe Method (Chatterjee, 1987), Serum Iron - Bathophenanthroline Method (N. Raghuramulu et.al., 1983) TIBC – Ferric chloride method - (N. Raghuramulu et.al., 1983) Percent transferrin Saturation – serum Iron / TIBC x 100. The results of the study were tabulated and subjected to statistical analysis. Mean and S.D were calculated, t- test was done to assess the level of difference between two variables and the results are analysed.

4. Results and Discussion

Table 1: Shows the Iron Status of the Elderly Fishermen

Sex	N	Hemoglobin G/Dl.		Packed Cell Volume %		Serum Iron µg/Dl.		TIBC µg/Dl.		% Transferrin In Saturation	
		Mean ± SD	t	Mean ± S	T	Mean ± S	t	Mean ± S	t	Mean ± S	t

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			D	D	D	D				
Mal es	5 0	9.28 ±1.2 5	33 .4 3 ± 5. 85	3.0 2* *	50 .0 1 ± S 10 .4	0. 10 @	42 9. 7 ± 40 .2 8	2. 51 @	12 .5 4 ± 2. 6	1. 12 @
Fe mal es	5 0	8.70 ±1.6 7	29 .3 0 ± 4. 60		50 .3 ± 10 .5		42 9. 7 ± 40 .2 8		11 .7 8 ± 2. 6	
Nor mal		11.5 ± 16.5	37 to 47		60 to 15 0		25 0 to 40 0		>1 6 %	

The normal haemoglobin levels for males were 14 to 18 µg/Dl and 11.5 to 16.5 µg/Dl for females. The mean Hb values of total males and females of the fishermen subjects were only 9.28 and 8.70 µg/Dl respectively. These values are very low indicating an anemic status in both men and women.

The mean Packed Cell (PVC) of males and females were 33.43% and 29.30 % respectively which are statistically significant (<0.01). During anemia the hematocrit values are decreased. The PVC values of both males and females were less than standard values males 42.52 % and females is 37.47 %.

The normal serum iron levels range from 60-150 µg/dl. The mean serum iron values of the males and females were 50.1 and 50.3 µg/100ml respectively which are statistically not significant. The subjects of the sample of both the sex groups had lower levels of serum iron. As age advanced the serum iron values decreased. Ageing is associated with increased risk of developing anemia.

The normal Total Iron Binding Capacity (TIBC) values are reported to be 250 – 400 µg/dl. The mean TIBC values of both the sex groups are showing upper levels i.e., above 400Ug/100ml. This indicates when serum iron levels are low, the TIBC levels are increased. The increase in the TIBC may be due to increased production of apotransferrin (Ex. Chronic Iron Deficiency).

The percent transferrin saturation values of the males and females were 12.54 and 11.78 % respectively and the difference between these values are not significant. Less than 16 percent of %TS indicates iron deficiency state and normal range is reported to be 20 – 55 %.

5. Conclusion

Based on the results pertaining to iron status parameters in the present study, it can be stated that a good percentage of subjects of the fishing community do suffer from iron deficiency anemia. Dietary iron inadequacy, lower iron absorption, protein and other micronutrient deficiencies along with infection, infestation, socio economic and

cultural influence and drug interactions might have played a significant role in the etiology.

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