

Research Article

Knowledge and awareness about Iron deficiency and megaloblastic anaemia among blood donors: a study at rural based tertiary care hospital

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ABSTRACT

Background: Voluntary blood donation is promoted in order to make the blood banking safe and successful. Research in the area of blood donation has found that, iron stores are influenced by regular blood donation if dietary intake of iron is inadequate. Awareness and knowledge among blood donors regarding iron and B12 deficiency and its prevention is very much required. Objective: To assess the knowledge and awareness about iron deficiency and megaloblastic anaemia among blood donors.

Methods: A cross sectional study was conducted among the 500 voluntary blood donors during the span of 1 year at one of the blood bank of tertiary care hospital using prestructured questionnaire on the various aspect of iron and B12 deficiency/folate deficiency anemia. The data was analysed with the help of Microsoft excel and SPSS.

Results: Out of 500 blood donors, 15.6% donors were regular blood donor. It was observed 60% blood donors were having knowledge of anemia in general. Iron deficiency and vitamin B12 deficiency were known to 42% and 31.6% donors, respectively. Only 20% donors could able to answer the acceptable level of hemoglobin require for donating the blood. About 42% donors were aware about importance of iron, folate and vitamin B12 in maintaining normal hemoglobin level. Majority (82.7%) of regular blood donors were willing to get information regarding iron, folate and vitamin B12 deficiency.

Conclusion: Significant lack of awareness regarding iron and vitamin B12 deficiency was observed in regular voluntary blood donors. The present study recommends the provision of health education on iron and vitamin B12 deficiency as well as Iron, folate and vitamin B12 rich foods to regular blood donor to prevent anaemia among them.

Keywords: Blood donor, Iron and vitamin B12 deficiency, Knowledge

INTRODUCTION

Voluntary blood donation is safe as compared to replacement blood donation. Regular voluntary blood donors are key person in society as they are helping the community in a great way. Sometimes donors are deferred because of low hemoglobin. A healthy blood donor loses about 225 mg of iron per donation.¹ This loss

is made up very quickly by mobilizing the iron stores in form of ferritin, followed by replenishing the iron stores if diet is adequate. The situation, however, is different for donors with high frequency of blood donations. Their iron stores are under a constant pressure. In the absence of iron replacement this can lead to emptying of iron stores. Also vitamin B12 and folate deficiency is very common even in healthy person. The prevalence of iron

depletion is significantly higher in menstruating women and increases progressively as the rate of donation increases.^{2,3} Vitamin B12 is a common deficiency across all age groups as B12 is not easily absorbed or metabolized. Vitamin deficiencies occur in apparently healthy first-time as well as in repeat blood donors and can be prevented by vitamin supplementation.⁴ It is therefore recommended that blood transfusion centres focused on maintaining Iron, folic acid and vitamin B12 balance by educating donor. Screening programmes based on the hemoglobin are adequate to prevent the development of progressive iron deficiency anemia but they provide no indication of the development of tissue iron depletion. In the era where only minorities of the eligible population have been willing to do the blood donation, it would be desirable to avoid iron depletion in regular blood donors. Education regarding Iron deficiency and megaloblastic anemia helps in prevention of these disorders particularly in blood donor.⁵ Neither of these approaches has been adequately evaluated at the present time. We have planned this study to evaluate knowledge and awareness about iron deficiency and megaloblastic anemia among blood donors.

METHODS

A cross sectional was conducted among 500 voluntary blood donors during the span of 1 year at one of the blood bank of rural tertiary care hospital. Knowledge and awareness on the various aspects of iron, vitamin B12 and folate deficiency was assessed using pretested proforma. Suggestion in the form of responses to open ended questions was also received from them. Informed verbal consent was taken from them prior to collection of data. Those who did not give consent were excluded from the study. Answer key was prepared well in advance for uniform assessment by the investigator. Score '1' was given to each correct answer. The data was analyzed with the help of Microsoft excel and SPSS.

RESULTS

Out of 500 blood donors 44% had donated blood in the past also. Only 15.6% were regular blood donors (Table 1). Socio-demographic profile of blood donors was analysed. 219 (43.8%) donors belonged to 28-38 years of age. Mean age of the donors were 36.4 years with standard deviation of 6.3 years. Among all blood donors 84.8% were males whereas 5.2% were females. 31.2% were graduates or above. Maximum numbers of donors were employed (Table 2). Information regarding knowledge on various aspects of iron and vitamin B12 deficiency was collected. It was observed 60% blood donors were having knowledge of anemia in general. Those who were having correct knowledge of Iron deficiency and vitamin B12 deficiency were 42% and 31.6%, respectively. Proportion of donors having correct knowledge of Iron and vitamin B12 rich food was 31.6% and 16.2%, respectively. Only 20% donors could able to

answer the acceptable level of hemoglobin require for donating the blood (Table 3).

Table 1: History of blood donation in the past among blood donors.

Have you ever gone for blood donation before	Frequency (%)
Yes	220 (44%)
No (First time blood donor)	280 (56%)
Total	500
Regular blood donor (Who donate blood at regular interval)	78/500 (15.6%)

Table 2: Socio-demographic profile of study population.

Socio demographic profile of study population	Frequency (%)
Age group	
18-28	120 (24.0%)
28-38	219 (43.8%)
38-48	116 (23.2%)
48-58	45 (9.0%)
Gender	
Female	26 (5.2%)
Male	424 (84.8%)
Education	
Primary or below	78 (15.6%)
Secondary	145 (29%)
Higher secondary	121 (24.2%)
Graduate and above	156 (31.2%)
Occupation	
Employed	470 (94.0%)
Un employed	30 (6.0%)

Table 3: Participants having knowledge about iron and vitamin B12 deficiency.

Knowledge about various aspect of iron deficiency and vitamin B12 deficiency	Frequency (%)
Symptoms of anemia in general	300 (60.0%)
Symptoms of iron deficiency in particular	210 (42.0%)
Symptoms of vitamin B12 deficiency in particular	177 (35.4%)
Sources of iron rich food	158 (31.6%)
Sources of vitamin B12 rich food	81 (16.2%)
Importance of iron and B12 in maintaining normal hemoglobin level	210 (42.0%)
Blood donor knowing acceptable level of hemoglobin required for blood donation	100 (20.0%)
How to prevent iron, B12 and folate deficiency	160 (32.0%)

Among 58 regular blood donors, 27 (46.5%) donors ever tested for their hemoglobin level whereas only 10 (17.2%) underwent vitamin B12 estimation in the past.

Donors with correct knowledge of normal levels of iron and vitamin B12, were 19 (32.7%) and 2 (3.4%), respectively. About one fifth of regular donors were having knowledge of preventive measure of iron and vitamin B12 deficiency. 82.7% regular donors were willing to receive detailed information on iron & vitamin B 12 deficiency (Table 4).

Table 4: Information related to hemoglobin and vitamin B12 among regular donor (n=58).

	Frequency (%)
Have you ever gone for your hemoglobin level estimation?	
Yes	27 (46.5%)
No	61 (53.5%)
Have you ever gone for your vitamin B12 level estimation?	
Yes	10 (17.2%)
No	48 (82.8 %)
Do you know the normal range of hemoglobin concentration?	
Yes	19 (32.7%)
No	39 (67.3%)
Do you know the normal range of vitamin B12 concentration?	
Yes	2 (3.4%)
No	56 (96.6%)
Do you know how to prevent iron, folate & B12 deficiency?	
Yes	14 (24.1%)
No	76 (75.9%)
Do you want more information on iron deficiency and vitamin B12 deficiency?	
Yes	48 (82.7%)
No	10 (17.3%)

DISCUSSION

Present study was conducted at one of the blood bank of tertiary care hospital. Total 500 voluntary blood donors during the span of 1 year have participated in the study. 219 (43.8%) donors belonged to 28-38 years of age. Mean age of the donors were 36.4 years with standard deviation of 6.3 years. Among all blood donors 84.8% were males whereas 5.2% were females. Maximum numbers of donors were employed.

This study was first of its kind among blood donors where knowledge and awareness of iron and vitamin B12 level of them was assessed. Finding of the study shows that about two- thirds of donors were having knowledge of anemia in general whereas one fourth regular donors had correct knowledge of preventive measures of anemia. Twenty percentage donors could able to answer the acceptable level of hemoglobin require for donating the blood. Almost half of the regular donors were tested for

hemoglobin level in the past. Majority of (82.7%) regular donor have shown willingness to receive detailed information on Iron and vitamin B12 deficiencies. Blood donors were not having enough knowledge about the rich dietary sources of Iron as well as vitamin B12. Gosh K in his study suggested the need to create education material to improve iron uptake through dietary modification.⁶ Boulahriss M et al. concluded the requirement of educating blood donors about iron supplementation in their study.⁷

CONCLUSION

Findings of present study suggested the need of providing knowledge regarding various aspects of iron, vitamin B12 deficiency to blood donor to prevent anemia among them.

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