Life Style Causing Anemia In Youth

Dr. A.Navamani[1], Dr P. Venkatesan[2]
[1, 2] Dept of Zoology
[1, 2] Loyola College

Abstract- *The aim of the study was to evaluate anemia among healthy males in Loyola College, Chennai, India. Totally 500 (Age 18-23) healthy students were included of which students were classified into low income family, cigarette smokers, Dieting, Athletics, Alcoholics and part-time job doing students. The study showed that only 4.8% students were anemic and 95.2% were normal and various grades of anemic conditions, 0.4% students severely anemic and 3.2% moderately anemic while 1.2 suffered from mildly anemic. Students which dieting habitats have shown high prevalence (7.57%) of anemia when compared to other life style parameters. It was observed that the prevalence of anemia was high (9.30) in the age group of 18 years than the others.*

Keywords- *Anemia, cigarette smoking, hemoglobin, hematocrit, iron deficiency, youth.*

I. INTRODUCTION

Anemia is defined as clinical condition characterized by reduction in hemoglobin concentration of blood below the normal for age, sex, physical condition and attitude above sea level of that person (Viteri F, 1998). Iron deficiency anemia is one of the most common cause of anemia worldwide (Ramakrishnan and Yip, 2002). Adequacy of bioavailable iron in the diet, together with food fortification and the widespread use of iron supplements, has reduced the overall prevalence and severity of iron deficiency, but iron nutrition remains a problem in some subpopulations especially toddles, adolescent girls, women of childbearing age and in some minority groups (CDCP, 2002).

The hemoglobin concentration and hematocrit are the principal screening tests for detecting anemia. The WHO hemoglobin cut-points for diagnosing anemia is adults have been widely adopted. Men <13 g/dL; menstruating women <12g/dL; pregnant women, <11 g/dL (Cook JD, 1982).

Different studies from India have shown that the prevalence of anemia among students according to Hb was reported by Sabita*et al.* (2005). High rate of anemia has been found among school children and adolescents in other developing countries such as Indonesia, Brazil, Egypt and India varying with the range of 24-60% (Verster and Vander Pols, 1995, Siecheri *et al*, 1996, Kosen *et al*, 1998, Mashauri

1998; Anjali Devi, 2000, WHO, 2003)Hb test might have detected all such variations. Therefore Hb estimation is more reliable and should be preferred for screening large population (Anjali Devi, 2000).

Nutritional anemia though global in occurrence, is more concern in the developing countries because of high prevalence in those regions compared to the vast work done is pregnant mothers and young children, there are relatively few published studies on the prevalence of anemia in adolescent and probable none in college boys. The present study was design to assess the prevalence of anemia and to determine hemoglobin concentration, hematocrit, RBC count, Reticulocyte count and Red cell indices (MCV, MCH & MCHC) among apparently healthy college going youth of Chennai in the age group of 18-23 years.

II. MATERIALS AND METHODS

The subjects were randomly selected from the student populations. A total of 500 students were chosen with the age of 18-23 years with no anemic disease were studied and written informed consent was obtained from the participants and the design of the study was done at college itself participations were asked about family, personal and life style parameters. Weight and Height were measured on the subjects BMI was calculated as body weight/Height (Kg/M^2). 2-4 ml of intravenous blood sample was collected using disposable syringe and needles and then the blood was transferred to a test tube containing Ethylene Diamine Tetra Acetic acid (EDTA) as an anticoagulant.

The blood samples were screened for various hematological studies such as Hb, Ht, RBC count, Reticulocyte count and Red cell indices. Results were subjected to statistical analysis of variance.Students were categorized into low- income family (fathers income Rs.5000/per month), Athletics, Dieting, Smoking, Alcoholics and part-time job doing students.

III. RESULTS

The overall percent prevalence of anemia was 4.8%. For all students, it was observed that prevalence of anemia was high (9.30%) in the age group of 18 years than the others.

The prevalence of anemia according their various life style as follows :- Low income students were 4.0%, Athletics were 4.32, part time job were 4.53, Dieting were 7.57, Smoking were 4.10 and Alcoholics were 5.68 among these category, the students with dieting habitat have shown high prevalence (7.57) of anemia when compared to other life-style parameters(Table1.1).   Age, height, weight, and BMI is normal and anemic subjects did not contribute significantly.

Considering the severity of anemia, according to age group, especially in the age of eighteen 0% were severely anemic (7.7g/dL), 6.57% were moderately anemic (7.1-10.9g/dL) and 2.32 were mildly anemic (22.0-12.9. g/dL)(Table1). With reference to severity of anemia in dieting students 0%, 4.54% and 3.03% in severe, moderate and mild respectively.   Hematological parameters like reticulocyte count alone were not found to be statistically significant, others like Hemoglobin, Hematocrit, RBC, MCV, MCH and MCHC strongly and significantly differ among normal and anemic students (P<0.001).

IV. DISCUSSION

The prevalence of anemia according to hemoglobin level among all students was 4.8%, which was higher than that reported by Gee Teo *et al* (1984). Based on hemoglobin estimation by Sahli hemoglobin meter in 87 randomly selected adolescent, the prevalence was 14.9% in males and 14.3 in female (Goel and Gupta, 2007) which was higher than the present study. Different studies from India have previously shown that prevalence of anemia among students according to hemoglobin was lower than reported by Sabita*et al* (2005).

Table 1: Number and percentage prevalence of anemia according to age groups.

Age group (in years)	Sample size	Normal	Anemic	Severity of Anemia		
				Mild	Moderate	Severe
18	43	90.7	9.30	2.32	6.57	-
19	155	93.55	6.45	1.53	3.67	6.64
20	91	95.61	4.39	1.09	2.19	1.09
21	124	97.59	2.41	-	2.41	-
22	49	95.2	4.80	-	4.08	-
23	38	97.37	2.63	2.63	-	-
Total	500	95.2	4.8	1.2	3.2	0.4

Table 1.1 Number and percentage prevalence of anemia according to various life styles

Life-style parameter	Sample size	Normal	Anemic	Severity of Anemia		
				Mild	Moderate	Severe
Low-income	175	96.00	4.00	1.14	2.28	0.57
Athletics	71	95.68	4.32	-	4.32	-
Part-time Job	81	95.47	4.53	1.23	3.70	-
Dieting	66	92.43	7.57%	3.03	4.54	-
Smoking	73	95.90	4.10	1.36	1.36	1.36
Alcoholic	34	94.32	5.68	-	5.68	-
Total	500	95.20	4.80	1.2	3.2	0.4

High rate of anemia has been found among school children and adolescent in other developing countries such as Indonesia, Brazil, Egypt and India varying with the range of 24-60% (Sichieri et al, 1996; Kosen *etal*; 1998; Mashauri *et al*; 1998; Anjali Devi, 2000).   Hemoglobin estimation is reliable and should be preferred for screening large populations. All students enrolled for this study were healthy and did not have any apparent clinical disorder. Results of this students sample survey show that anemia is a common health problem among students who have dieting habitat, Alcoholic and those who do part-time jobs.

Cigarette smoking is prevalent among students found in this study (4.10%) as in other previous studies21% (Jarallah *et al.*, 1999) and 34% (Siddique *et al*, 2001) and 39.4% (Ai-Assaf, 2007). Since both hemoglobin and hematocrit levels got elevated by cigarette smoking.   The elevation of hemoglobin and hematocrit by smoking may be attributed to elevation of carbon monoxide – a major component of cigarette smoke, which reduces tension in the body. This reduction increases production, maturity and release of erythrocytes from blood forming organs and thus elevates hemoglobin and hematocrit (Van Liere and Stickney, 1963).

It is to be noted that there were more anemic students, who had to go in low caloric diets in to avoid gaining weight (Dieting). The percentage of students who showed hemoglobin levels below 11.9-12.9 g/dL was greater in teenagers (18-19) that in late adolescence (20-23). This may be due to the fact that the growth correspondents to the fact of adolescent growth spurt and that poor nutrition or iron depletion in the stage would easily create as added demand for

available iron. This is in accordance with the report of Fujii (1973). Leonard (1954) has reported that 0.9% of 4221 recruits aged 18-20 showed hemoglobin levels below 10.4gl 100 ml and 0.2% of them showed hemoglobin levels below 10.4-12 g/100ml and Bromfitt (1960) reported 1.1% of 2000 recruits age 17-21 showed hemoglobin levels below 11.9g/100ml. By another study (Fujii, 1973) reported that hemoglobin levels below 11.9g/100 ml were observed is 7.0% which was similar to the present study.

In the present study, overall prevalence of anemia was 0.4%, 3.2% and 1.2% of severe, moderate and mild respectively. The present data may held good fine to other studies on the prevalence of anemia among college students represents 2.3%, 7.2% and 26.7% with severe, moderate and mild respectively (Sultan, 2007).In all life style parameters we find significance association between normal and anemia. The prevalence of anemia among Athletic was 4.32 which was lower that reported by Drorit (2005). Reasons for this difference may be attributed to the variations in sampling.

It is well known that smoking increases hemoglobin concentration and this effect is related to carbon monoxide exposure (Ei Zayadi *et al*; 2002; Cogswell *et al.*, 2003). Alcohol and drug use may also alter iron metabolism consequence of abnormally low Hb levels (anemia is decreased capacity to do physical work (Davies *et al*, 1973, Gardner *et al*, 1977, Beutler, 1980).The anemic cut-off points in this study was derived by statistical analysis of the Hb "cross tabulation". In addition, these finds validate the use of Hb cross tabulation analysis to define anemia as severe, moderate, and mild in this studied subject.

Therefore, off course limitation to the present study, while an important link has been demonstrated between anemia as defined in this population and different lifestyle. It was not demonstrated that iron supplementation would raise the Hb levels in the identified anemic nor that increases in Hb in the anemic would lead to increase in this annual performance.

CONCLUSION

These findings raise the need for action to eradicate anemia among males. Because males are not only the bread winners of the family but also involve in hard work. Increasing public awareness and fortification can clear this problem. As a final note it may be mentioned out that our estimations of prevalence and identification of anemia in the present finds are based on Hb levels. This type of estimation products the identification of individuals who may be below (or above) their personal optimal Hb status and thus anemic,

but within the populations normal Hb range which a battle of hematological tests (such as, serum transferrin, serum ferritin and free erythrocytic protoporphyrin) can be used to estimate anemia and iron deficiency anemia in a population such an approach can be difficult and expensive.

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