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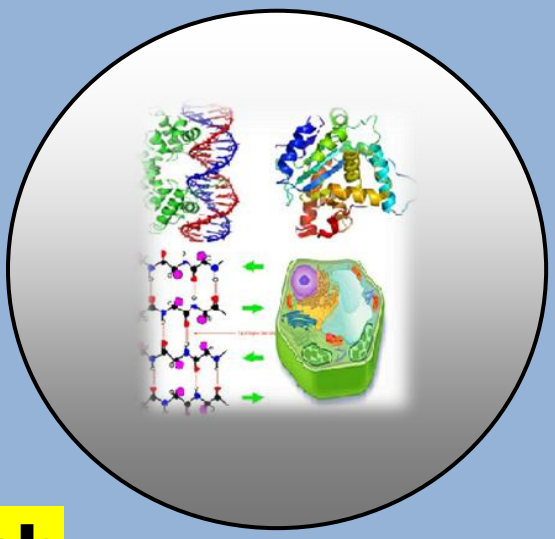

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RESEARCH PAPER

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Prevalence of Anemia among the First Year MBBS Students in a Medical Teaching Institution in Lucknow

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ABSTRACT

The medical students may suffer anemia because of long schedule of work in college, clinical labs and extra-curricular activities. They came from different socio-economic & cultural backgrounds and belong to various geographical regions of the country. A cross sectional study was conducted during the period from 1st May, 2014 to 28th July, 2014 among the first year MBBS Students. A total of 100 students enrolled in the batch with age ranging 20 to 26 years were studied **in Career Institute of Medical Sciences and Hospital, Lucknow (U.P.), India.** ***A structured questionnaire, which include general information, sign and symptoms regarding anemia, dietary habit, BMI, general physical examination, systemic examination and a Sahli's method for Hemoglobin estimation were carried out. Out of total 100 students 59 students were found anemic. Out of these 35 (i.e. 52%) were male students and 24 (i.e. 72%) were female students. The cutoff hemoglobin level below 12.0 gm% was considered parameter of anemia. The mean hemoglobin concentration among students was 12.6 gm % with standard deviation of 1.62, variance of 2.64, and median of 12.8. Implementing lifestyle changes and periodic screening of the medical students of all fields of study. A concerted effort is needed for dietary modification, deworming and iron supplementation for correction of anemia.***

Key words: Anemia, Prevalence, Socio-economic & Cultural backgrounds and MBBS students.

INTRODUCTION

Anemia is not a single disease but a group of disorders in which hemoglobin concentration of blood is below the normal range for the age & sex of the subject **(**Indu Khurana, 2005**).** It

is amongst the most common disorders affecting mankind **(**Antia and Abraham, 1997**).** 30% of the world's population may be affected at time **(**Antia and Abraham, 1997**).** This state of decreased oxygen carrying capacity of blood can occur due to a variety of reasons including insufficient production of red blood cells (dyshemopoietic anemia), blood loss (hemorrhagic anemia) or hemolysis (hemolytic anemia) **(**Antia and Abraham, 1997**).**

Some of the common symptoms of anemia are lassitude, fatigue, generalized muscular weakness, dizziness, tinnitus, headache, paleness of skin and mucous membranes, breathlessness, palpitation, visual disturbances, anorexia, atrophy of papillae on tongue, menstrual disturbances such as amenorrhoea and menorrhagia, insomnia, general ill health and frequent infections **(**Antia and Abraham, 1997**,** Adamson and Longo 2005**).** Megaloblastic anemia is associated with poor memory **(**Indu Khurana, 2005 **).** Gradual onset of anemia, particularly in young patients may not be associated with signs and symptoms until anemia is severe **(**Adamson and Longo, 2005**).** Anemia may only be detected once the person becomes symptomatic. It is most often recognized by abnormal screening laboratory tests (Adamson and Longo, 2005**).**

The other causes of anemia are insufficient iron in the diet, malaria, intestinal worms, and HIV/AIDS. Chronic anemia may result in reduced scholastic performance in adolescents. So the present study was planned to ascertain the prevalence of anemia among the first year MBBS students and to suggest intervention strategies.

MATERIAL AND METHODS

a. Study Design

A cross-sectional medical institution based study was carried out between May, 2014 and July, 2014. The study subjects were 100 young adult medical students between 20- 24 years of age. 67% (n = 67) male participants and 33% (n = 33) female participants were recruited after approval of the institutional ethics committee (Figure1). A pre-designed and pre-tested self administered questionnaire interview method was used after obtaining informed consent. The mean (SD) age of the participants was 19.52 years. Age was recorded as number of completed years as on the nearer birthday. 45% participants were vegetarian and 55% were non-vegetarian.

b. Estimation of Hemoglobin level

Hemoglobin level was estimated by Sahli's method (Rusia and Sood, 1998). Capillary blood was collected by the finger prick method, using 22 G disposable needles and Sahli's 20 micro-liter pipette. All samples were collected after lunch after having ensured that the participants do not have any possibility of hemo-concentration (enteritis, gastritis, fever or excess sweating for any reason) or hemo-dilution (blood donation, water intoxication, or edema).

c. Data collection

Personal particulars and risk factors for anemia were asked for, vide a questionnaire. The values of the hemoglobin level were recorded by comparing two brown colored glass rods. Anemia was diagnosed at hemoglobin level lower than 13 g/dl for males and lower than 12 g /dl for females (5, 6).

The following variables were tabulated from the questionnaire:

a) Participants' vegetarian / non-vegetarian status.

b) Anemic participants' awareness for them.

d. Data Analysis

- Prevalence of anemia was calculated separately, as a proportion for all the participants i.e. the male participants and the female participants, taken together.
- Prevalence of anemia among the two groups i.e. vegetarian and the non-vegetarian participants was calculated separately.
- Information was taken about awareness of anemia from anemic students.

RESULTS

Overall, 59% students were detected to be anemic (Table - 1). 72% of the female students and 52% of the male students were detected to be anemic (Table - 1). Prevalence of anemia among vegetarian and non-vegetarian students was 38% and 43% respectively (Table - 1). 15 (9 males and 6 females) out of total 59 anemic students were aware of having anemia (Table - 2).

Table 1. Prevalence of anemia amongst various classes of Students.

	Anemic % (n)	Non anemic % (n)	Total (n)
Total	59 (59)	41 (41)	100
Female	72(24)	28 (9)	33
Male	52(35)	48 (32)	67
Vegetarian	38(17)	62 (28)	45
Non vegetarian	38(24)	57 (10)	55

Table 2. Awareness of anemia amongst anemic students.

	Aware % (n)	Not aware % (n)	Total (n)
All anemic students	25 (15)	75 (44)	59
Female anemic students	38 (9)	62 (15)	24
Male anemic students	17 (6)	83 (29)	35

DISCUSSION

The prevalence of anemia among young adult medical students in our study was 59%. This corresponds to an ICMR study by Toteja GS and Singh P (Toteja and Singh, 2002) who obtained data from 16 districts of 11 states through District Nutrition projects, where prevalence of anemia among adolescent girls has been found to be as high as 90.1%. Similarly, studies on prevalence of anemia from different states of rural India, reported high prevalence of anemia from 46-98% (8, 9). As there is no published literature available for prevalence of anemia among MBBS students, it can only be compared to that reported for the adult population of India.

The last National Family Health Survey, India, NFHS-3, reported prevalence in India for the 15-49 years age group at 56% for females and 24% for males **(**World Health Organization, 2001**).** With increasing age in the professional course there is increase in the prevalence of anemia among students which also corresponds with the year of study. This may be related to dietary habits of students and/or quality of food served in the hostels as most of the students reside in institution hostels. This stress combined with that of having to cope with the professional course study pressure, could have caused them to neglect their diet.

The participants had already been in this new environment for about six months when the study was undertaken. The stress factor could even have started much earlier when they were preparing for their subsequent competitive examinations. Being in an outer place, non-availability of the preferred food could have made them lose interest in eating. Easy availability of junk food could have added to the problem. Many students depended on the canteen or tiffin provider for their meals. None of these systems provided fresh fruit as part of the meals. Salad was provided only by the mess. Most of the students took a snack instead of a proper breakfast.

The prevalence of anemia in the females is known to be higher due to menstrual losses. Media exposure to messages about weight loss affects eating behavior and might lead to many a female young adults indulging in undue dieting **(**National Family Health Survey 2012 and Van den Berg et al., 2007**).**

Published literature supports a need to research over weight related social pressure (Van den Berg et al., 2007, Neumark Sztainer et al., 2007 and Sindhu, 2005). Frequent reading of magazine articles about dieting/weight loss is strongly associated with unhealthy weight-control behaviors in girls. Awareness among the anemics in the study participants, about the presence of anemia in them, is very low, at 6%, among the male participants and at 9%, among the female participants.

As far as the overall low awareness is concerned, it is known that a gradual onset of anemia, particularly in young patients may not be associated with signs and symptoms until anemia is severe **(**Adamson and Longo 2005**,** Deshmukh et al., 2005 and Kaur and Singh, 2001). Anemia may only be detected once the person becomes symptomatic. It is most often recognized by abnormal screening laboratory tests **(**Adamson and Longo 2005**,** Roschnik et al., 2004 and Roschnik et al., 2004**).**

CONCLUSION

The facts in discussion underline the need to provide a good hostel and mess in the campus and the study place, implement lifestyle changes and periodic screening of the medical students for anemia.

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