AT BILASPUR, CHHATTISGARH

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ABSTRACT

Background: The medical students may also suffer anaemia because of a long schedule in college, clinical postings, and extra-curriculum activities. They come from different socio-economic, cultural backgrounds and various geographical regions of the country.

Methodology: A cross-sectional study was conducted during from 1st January, 2009 to 28th February, 2009 among 3rd year MBBS students between the ages of 20 to 25 years studying at Chhattisgarh Institute of Medical Science (CIMS), Bilaspur. A total of 96 students age ranging 20 to 25 years out of 100 students enrolled in the batch were studied. A structured questionnaire, which included general information, sign and symptoms regarding anaemia, dietary habit, BMI, general physical examination, systemic examination and a TALLQVIST strip for Hemoglobin estimation were carried out.

Results: Anaemia prevalence was 30.20% among medical students. Out of total 96 students 29 students were found anaemic out of which 11 (19%) male students were anaemic. And 18 (47.4%) female students were found anaemic. The cutoff hemoglobin level below 12.0 gm% was considered anaemia. The mean hemoglobin among students was 12.4 gm% with standard deviation of 1.59, variance of 2.54, and median of 12.5.

Conclusion: The studies like present one in the country can highlight the size of the problem i.e. iron deficiency without anaemia which is also called latent iron deficiency among unexpected population i.e. medical students. Iron supplementation is thus required for the target group. Therefore preventive programs and policies of the country can target this age group particularly in educational institutes.

Key Words: Anaemia, Hemoglobin, Medical, Students

INTRODUCTION

Nutritional anaemia is a particularly common disorder among infants, preschool aged children, young women and older people, but it can occur at all ages and in any region. There are about 100 students enrolled every year in the Chhattisgarh Institute of Medical Science situated at Bilaspur, Chhattisgarh which offers a five and half year undergraduate course of MBBS¹. These students come from different socio-economic, cultural backgrounds.

The medical student also come under the vulnerable group that suffer anaemia because of having long schedule of studying in college, clinical postings, and other curriculum activities. Their living in the hostel or as day scholars away from parents and families was reflected upon their diet habits and had a significant reflection upon the prevalence of anaemia among the studied group, and also appropriate nutrition requirements increase significantly during certain period of life, thus placing individuals during these periods at greater risk of deficiency. Adolescence or early adulthood is one of the most vulnerable periods in human life cycle when nutritional requirement increases due to the growth spurt.

Nutritional anaemia is prevalent all over the world with an estimated one billion people being iron deficient². And it is one the most common nutritional disorder in the developing world, With an average prevalence of 40% among the general population that it affect nearly two-third of pregnant and one half of non pregnant women in those countries which is three to four times higher than in the developed countries, where prevalence is between 4% to 12% among women of child bearing age³. In India, Recent data from the District Nutrition Project (Indian Council of Medical Research) in 16 districts of 11 states, on prevalence of anaemia in non pregnant adolescent girls (11-18 years) showed rates as high as 90.1% with severe anaemia (Hb <7 g/dL) in 7.1%⁴.

Very few studies have been conducted on anaemia in the state of Chhattisgarh and little is known about anaemia among medical college students. The present study aimed at measuring the magnitude of anaemia prevalence among the MBBS students of 3rd year⁵. Following are detailed aims and objectives of the present study.

OBJECTIVES
Objectives of this study were to measure the prevalence rate of anaemia among the 3rd year medical students of Chhattisgarh Institute of Medical Science (CIMS), Bilaspur; to measure the severity of anaemia among medical students using hemoglobin percentage as cutoff value provided by WHO; to compare the nutritional status (BMI) with the prevalence of anaemia among medical students; and to find out any relationship between their socioeconomic status, BMI, eating habit/schedule with prevalence of anaemia among medical students.

MATERIALS AND METHODS

A cross sectional study was conducted during from 1st January, 2009 to 28th February, 2009 among 3rd year MBBS Students between the age of 20 to 25 years studying at Chhattisgarh Institute of Medical Science (CIMS), Bilaspur. After ethical approval from IEC of the Chhattisgarh Institute of Medical Science (CIMS), Bilaspur a total of 96 students age ranging 20 to 25 years out of 100 students enrolled in the batch were studied.

All the students were administered a structured questionnaire, which include general information, sign and symptoms regarding anaemia, dietary habit, data for BMI and a TALLQVIST strip for Hemoglobin estimation. The general information including bio-data, parents’ education, occupation, income, family structure and socioeconomic status collected. A detailed clinical history taken from them for any presenting symptom and socioeconomic status (BMI) with the prevalence of anaemia among medical students; and to find out any relationship between their socioeconomic status, BMI, eating habit/schedule with prevalence of anaemia among medical students.

RESULTS

The anaemia was observed in 29 (30.20%) students out of total 96 students selected to carry out study from whole MBBS batch of 100 students of 3rd year. Anaemia was absent in the remaining 67 (69.80%) medical students. The prevalence of anaemia was 30.20% among medical students, out of which 18.96% (11 students) were males and 47.37% (18 students) were females suffering from anaemia. There were 11 (18.96%) males anaemic and 47 (81.03%) males non-anaemic out of total 58 males included in the present study and similarly 18 (47.37%) females anaemic and 20 (52.63%) were non-anaemic out of 38 females [Table1].

Table1: Sex-wise distribution of Anaemia

<table>
<thead>
<tr>
<th>Anaemia</th>
<th>Males (%)</th>
<th>Females (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>11 (18.96)</td>
<td>18 (47.37)</td>
<td>29 (30.20)</td>
</tr>
<tr>
<td>Absent</td>
<td>47 (81.03)</td>
<td>20 (52.63)</td>
<td>67 (69.80)</td>
</tr>
<tr>
<td>Total</td>
<td>58 (100)</td>
<td>38 (100)</td>
<td>96 (100)</td>
</tr>
</tbody>
</table>

x²=8.78, df=1, *p=0.0030374

The mean hemoglobin among student was 12.4 gm % with standard deviation of 1.59, variance of 2.54 and median of 12.5. If we observe about severity of anemia among student there were mild anaemia among 20 students (68.97%) followed by moderate anaemia among 9 students (31.03%) but there were no student having severe anaemia [Table2].

Table2: Severity of Anemia among Medical Student

<table>
<thead>
<tr>
<th>Severity</th>
<th>Males (%)</th>
<th>Females (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>5 (45.45)</td>
<td>15 (83.33)</td>
<td>20 (68.97)</td>
</tr>
<tr>
<td>Moderate</td>
<td>6 (54.55)</td>
<td>3 (16.67)</td>
<td>09 (31.03)</td>
</tr>
<tr>
<td>Severe</td>
<td>0 (0.00)</td>
<td>0 (0.00)</td>
<td>00 (00.00)</td>
</tr>
<tr>
<td>Total</td>
<td>11 (100)</td>
<td>18 (100)</td>
<td>29 (100)</td>
</tr>
</tbody>
</table>

x²=4.58, df=1, p-Value=0.0324

According to World Health Organization (WHO) standard of BMI student are classified as underweight (BMI below 18.5) normal (BMI 18.5 – 24.99) and overweight (BMI >25), and Mean BMI of student was 21.49 with standard deviation of 3.1007. Among 96 students 15.62% (15) student were underweight, 67.71% (67) normal and 16.67% (16) were overweight [Table3].
There was 11.4% Iron Deficiency affects one’s development, growth and resistance to malabsorption, or a combination of all these factors. It is inadequate iron intake, chronic blood loss or disease, or iron deficiency anaemia. The similar trend was observed in a study among non school going adolescent girls in three districts of Orissa, of which, 45.2%, 46.9%, and 4.4% were mild anaemia among 20 students (20.83%) followed by moderate anaemia among 9 students (9.37%) but there were no student having severe anaemia in the present study. In the study of Sanjeev M Chaudhary and Vasant R Dhage, out of 104 subjects, 72 subjects (69.2%) had mild anaemia [Hb 10 to < 12 gm/]% while 32 subjects (30.8%) had moderate anaemia [Hb 7 to < 10 gm%]. None of the subjects had severe anaemia.

**Table 1**

<table>
<thead>
<tr>
<th>Anemia</th>
<th>Underweight (%)</th>
<th>Normal (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>9 (60.00)</td>
<td>18 (27.69)</td>
<td>27 (47.4%)</td>
</tr>
<tr>
<td>Absent</td>
<td>6 (40.00)</td>
<td>47 (72.31)</td>
<td>53 (92.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>15 (100)</td>
<td>65 (100)</td>
<td>80 (100)</td>
</tr>
</tbody>
</table>

This also suggests that anemia prevalence decrease as nutritional status of subject increase. Mean height of female is 1.58 m (anaemia present-1.57m, anaemia absent-1.58m) and mean height of male is 1.71 m (anaemia present-1.72m, anaemia absent-1.71m). Mean weight of female is 51.84 kg (anaemia present-50 kg, anaemia absent-53kg) and mean weight of male is 64.62 kg (anaemia present-60kg, anaemia absent-65 kg). Mean BMI of female is 20.80 kg/m² (anaemia present-20.30 kg/m², anaemia absent-21.24 kg/m²) and mean BMI of male is 21.95 kg/m² (anaemia present-20.33 kg/m², anaemia absent-22.33 kg/m²).

**DISCUSSION**

The Nutritional anaemia is the most common cause of anaemia worldwide. It frequently occurs due to inadequate iron intake, chronic blood loss or disease, malabsorption, or a combination of all these factors. It affects one’s development, growth and resistance to infections, and is associated with mortality among children younger than two years old. Iron Deficiency Anaemia is also a form of Nutritional anaemia which is distributed universally; the most affected population groups are infants aged between four and 24 months old, school-age children, female adolescents, pregnant women and nurturing mothers.

In the present study among the medical students there were mild anaemia among 20 students (20.83%) followed by moderate anaemia among 9 students (9.37%) but there were no student having severe anaemia. The similar trend was observed in a study carried out among female medical students in a medical institute at Tehran in the study groups, 118 (52.7%) had a normal iron status (Group 1), nine (4.0%) suffered from Iron Deficiency Anaemia (Group 3) and 97 (43.3%) had Iron Deficiency without anaemia (Group 2). In this study the prevalence of nutritional anaemia was 30.20% among students, 19% (11 students) of male student have anaemia and 47.4% (18 students) of female student were found anemic. There were 11 (19%) males anemic out of total 58 and 18 (47.4%) females anaemic of 38.

Sanjeev M Chaudhary and Vasant R Dhage et al carried out a study in an urban area under Urban Health Training Center of a medical college, Nagpur, among a total of 296 adolescent females (10–19 years old) and according their observations the prevalence of anaemia was found to be 35.1%. A significant association of anaemia was found with socio-economic status and literacy status of parents. In the study of Sanjeev M Chaudhary and Vasant R Dhage et al, mean height and mean weight of subjects with anaemia was significantly less than subjects without anaemia, which suggests that anaemia affects the overall growth of adolescents. Similarly in the study carried out by Shams S, Asheri H, the prevalence rates of ID and IDA in female university students aged 18–25 years were 40.9% and 3.8%, respectively.

After the analysis we found Anemia was more prevalent among the students who were overweight, and over weight student have less prevalence of anemia then the other study group. The prevalence of anaemia among underweight (BMI below 18.5) was 60%, and normal (BMI 18.5 – 24.99) of 27.5% and overweight (BMI >25) have prevalence of 12.5%. This also suggests that anaemia prevalence decrease as nutritional status of subject increase. Bulliyy et al found 96.5% prevalence among non school going adolescent girls in three districts of Orissa, of which, 45.2%, 46.9%, and 4.4% had mild, moderate, and severe anaemia. They found significant association between Hb concentration and the educational level of girls, their parents’ family income, and body mass index. If we observe about severity of anaemia among student there were mild anaemia among 20 students (20.83%) followed by moderate anaemia among 9 students (9.37%) but there were no student having severe anaemia in the present study. In the study of Sanjeev M Chaudhary and Vasant R Dhage, out of 104 subjects, 72 subjects (69.2%) had mild anaemia [Hb 10 to < 12 gm%] while 32 subjects (30.8%) had moderate anaemia [Hb 7 to < 10 gm%]. None of the subjects had severe anaemia.

**CONCLUSION**

The following conclusions can be drawn from present study:

Anemia prevalence among medical students of 3rd year batch in the medical college was 30.20%. The mean Hb among these students was 12.4 gm/dl with standard deviation of ±1.59. The prevalence of severe, moderate
and mild anemia was 0.0%, 9.37% and 20.83% respectively. The prevalence of anemia remained high and closely related to the nutritional status.

**RECOMMENDATION**

On the basis of results observed in the present study the following measures can be suggested:

Medical student are as gems for medical college they are future doctor of the society, there should be some program to fulfill their nutritional requirement. And the quality of food in hostel mess must be maintained and supervised by respective authority of institute.

Medical student should go for routine hemoglobin analysis to keep an eye on their hemoglobin level.

**REFERENCE**