Original Article

Anemia among Students of a Medical School in Srinagar City

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Abstract

Background: Anemia is a common problem in our country. Many interventions are in place to lessen the burden of this deficiency but still a lot needs to be done. The objective of this study was to estimate the prevalence of anemia in students of a medical school.

Materials and Methods: Students studying in 1st professional of medical college were enrolled for the study. A semi-structured pretested questionnaire was used. The questionnaire included information about the socio demographic characteristics of the students. Data was analysed using percentages, chi-square.

Results: 35.6% of students were 18 years of age. 52.3% were females. 59.7% belonged to nuclear families. 57.7% were from rural areas. 85.9% were Muslims with 96% participants non-vegetarians. 48.3% turned out anemic with 61.04% having mild anemia. None of the participants had severe degree of anemia.

Conclusion: The study found a huge burden of anemia among the students which prompts one to find out various factors associated with this problem.

Keywords: anemia, medical school, Srinagar city.

Introduction

WHO defines anaemia as a condition in which the Haemoglobin (Hb) content of blood is lower than normal as a result of deficiency of one or more essential nutrients, regardless of the cause of such deficiencies¹ and thus estimating hemoglobin level is the main diagnostic method. Anemia decreases the work capacity of an individual, depending upon the degree of anemia. Mild and moderate decrease in hemoglobin levels does not have any overt symptoms but severe anemia incapacitates an individual. India being one of the resource poor countries in world leads in prevalence of anemia. As per WHO, there are two billion people with this condition in the world and half of these is due to iron deficiency.² In India, anaemia affects an estimated 50 per cent of the population.³ These staggering figures lead to economic and health consequences in resource poor countries like India. Anemia is a major public health problem of our country, keeping in view that ICMR (Indian Council for Medical Research) has classified the
public health significance based on the burden as under;

Classification of public health significance of anemia in populations on the basis of prevalence estimated from blood levels of hemoglobin.\(^4\)

| Category of public health significance | Prevalence of anemia (%) |
|--------------------------------------|--------------------------|
| Normal/Not a problem                  | 4.9 or lower              |
| Mild/Low                             | 5.0-19.9                 |
| Moderate                             | 20.0-39.9                |
| Severe/ High magnitude               | 40 or higher             |

Adolescence is a critical time in the life of humans where behaviours developed at this point of time determine the health and well being for the lifetime. A girl child having anemia leads in return to a birth of anemic child too and the cycle goes on. To break down this vicious cycle intervention should be at the right time. Thus any nutritional disorder more so iron deficiency anemia require a collective effort for promotion of primordial cum primary preventive actions which are cost effective and simple to act upon.

Objectives

1. To find out the percentage of anemia among students of a medical school and different epidemiological factors associated with it.

Material and Methods

The study was conducted from November 2016 to December 2016 in government medical college Srinagar. The study employed a non probability convenience sampling technique. All the students of first professional were enrolled and interviewed. Information on socio-demographic variables like age, education of mother, type of family, residence, sex, religion, type of diet, fathers occupation was collected using a semi structured pretested questionnaire. Weight was measured on a pre-calibrated weighing scale (bathroom scale).

The scale was calibrated using a standard weight. Measurements were taken to the nearest 0.1 kg. Participants were weighed in light clothing and bare feet. Height was measured in the Frankfort plane with a portable stadiometer. The measurements were taken to the nearest 0.1 cm. Blood sample was collected after taking a proper consent. Hemoglobin estimation was done by Sahli method.

The suggested cut-off values for anemia in various groups of population are as under.\(^5\)

The data was entered in Microsoft excel (2007) and analysis was done using percentages, chi-square. A p-value of <0.05 was taken as statistically significant.

Results

The study sample included 149 students in the age group of 18 -21 years, 35.6% of students were 18 years of age. Adolescents comprised about 62.4% of the study population. 52.3% were females. 59.7% belonged to nuclear families with 42.3% of participants whose mother having upto 12 years of education. 48.3% having father as employees. 57.7% were from rural areas. 85.9% were muslims with 96 % participants non vegetarians. (Table I) 48.3% having anemia in which 68.83% were females and 31.16% males which is shown in Table II.

61.04% respondents having mild anemia followed by 31.16% moderately anemic and none having severe anemia as shown in Table III.
Table I Socio demographic characteristics of the participants

| Variables                  | Frequency n=149 | Percentage |
|----------------------------|-----------------|------------|
| Age (years)                |                 |            |
| 18 years                   | 53              | 35.6       |
| 19 years                   | 40              | 26.8       |
| 20 years                   | 45              | 30.2       |
| 21 years                   | 11              | 7.4        |
| Type of family             |                 |            |
| Nuclear                    | 89              | 59.70      |
| Joint                      | 60              | 40.30      |
| Education of mother        |                 |            |
| Illiterate                 | 12              | 8.1        |
| Upto Higher secondary      | 63              | 42.3       |
| Graduate                   | 55              | 36.9       |
| Post graduate and above    | 19              | 12.7       |
| Residence                  |                 |            |
| Rural                      | 86              | 57.7       |
| Urban                      | 63              | 42.3       |
| Sex                        |                 |            |
| Males                      | 71              | 47.7       |
| Females                    | 78              | 52.3       |
| Religion                   |                 |            |
| Muslims                    | 128             | 85.9       |
| Hindus                     | 16              | 10.7       |
| Buddhist                   | 3               | 2.0        |
| Sikh                       | 2               | 1.3        |
| Occupation of father       |                 |            |
| Salaried                   | 72              | 48.3       |
| Farming and allied         | 40              | 26.8       |
| Business                   | 26              | 17.4       |
| Others                     | 11              | 7.4        |
| Type of diet               |                 |            |
| Non-vegetarian             | 143             | 96.0       |
| Vegetarian                 | 6               | 4.0        |

Table II Percentage of anemia

| Education of mother | Frequency (n= 149) | Percentage |
|---------------------|--------------------|------------|
| Illiterate          | 12                 | 8.1        |
| Upto Higher secondary | 63               | 42.3       |
| Graduate            | 55                 | 36.9       |
| Post graduate and above | 19             | 12.7       |
| Residence           |                    |            |
| Rural               | 86                 | 57.7       |
| Urban               | 63                 | 42.3       |
| Sex                 |                    |            |
| Males               | 71                 | 47.7       |
| Females             | 78                 | 52.3       |
| Religion            |                    |            |
| Muslims             | 128                | 85.9       |
| Hindus              | 16                 | 10.7       |
| Buddhist            | 3                  | 2.0        |
| Sikh                | 2                  | 1.3        |
| Occupation of father |                   |            |
| Salaried            | 72                 | 48.3       |
| Farming and allied  | 40                 | 26.8       |
| Business            | 26                 | 17.4       |
| Others              | 11                 | 7.4        |
| Type of diet        |                    |            |
| Non-vegetarian      | 143                | 96.0       |
| Vegetarian          | 6                  | 4.0        |

Table III Distribution of study participants in relation to severity of anemia

| Degree of anemia     | Frequency | Percentage |
|----------------------|-----------|------------|
| Mild anemia          | 47        | 61.04      |
| Moderate anemia      | 30        | 38.96      |
| Total                | 77        | 100 %      |

Table IV Relation of anemia with different socio demographic factors

| Characteristics of participants | Chi-square value* | p-value |
|---------------------------------|-------------------|---------|
| Age                             | 2.339             | .5      |
| Sex                             | 17.354            | 0.000 **|
| Type of family                  | .45               | .5      |
| Religion                        | .29               | .5      |
| Occupation of father            | 1.714             | .63     |
| Residence                       | 3.26              | .07     |

Discussion

The present study was conducted in a medical school of Srinagar city. It included 149 students. A large number of students presented with anemia (48.3%). No statistical relation of anemia was found with father’s occupation, education, residence, age, type of diet taken by the individual. There was strong statistical significance found among males and females regarding presence of anemia. The low dietary intake of iron and folic acid coupled with poor bioavailability of iron is the major factor responsible for very high prevalence of anaemia in the country. The bioavailability of iron for absorption in blood depends mainly on the components of diet. Iron in the form of heme is highly bioavailable that is the reason, meat and meat products are useful for iron availability. Vitamin C improves too the availability of iron for absorption as well as the avoidance of tea or other chelatin substances. Cooking practices like deep frying in our part of country, worm load, and use of tea could be one among the possible factors. Lack of vegetables like green leafy or coloured vegetables in the main meals eaten everyday. Eating highly processed foods, junk foods could be also one of the factors related to such a high burden of anemia. Monotonous diets rich phytates inhibit iron absorption too. Research and understanding of fundamental iron biology will help in devising novel strategies which will be aimed towards the elimination of this disease from world.

Conclusion

The study found a high burden of anemia in this group of population. So further studies need to be taken to see various factors responsible for this high level of anemia in pregnant women and monitoring of the interventions being taken at this point of time so that the burden is decreased or
brought to control. To conclude, food fortification, behaviour change communication, information and communication remain the key to decrease this high level of anemia in our population.

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Author’s contribution: Dr. Mahbooba conceived the study, prepared the manuscript and Dr. Sheema analysed the data. Dr. Shaugufta collected the data and did the data entry. Dr. Sheikh Imran reviewed the article.

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