

## Research Article

# Evaluation and comparison of knowledge, attitude and practice about iron deficiency anemia amongst medical students of rural and urban background

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### ABSTRACT

**Background:** Iron Deficiency Anemia (IDA) is most prevalent anemia worldwide. Women have additional iron requirement from puberty to menopause. This arises from physiological needs of menstruation, pregnancy and lactation. Iron is required for oxygen transport, cellular oxidation, phagocytosis and immune functions. The magnitude of anemia as health problem is huge and can be tackled with increasing awareness, promotion of correct attitudes and practices.

**Methods:** Cross sectional study consisting of 50 medical students of age group 18-22 years divided in two groups coming from rural (Group I) and urban background (Group II). A structured questionnaire of 26 questions, out of which 18 questions based on knowledge, 4 on attitude and 4 on practice. Response was assessed using Percentage analysis and Chi square test.

**Results:** All students defined anemia as Hb <11 g/dl, RBC <4.5 million/cu.mm with pallor. 80% students having knowledge that anemia is more common in rural area. Most common sources of information were books and teachers (76% in Group I and 56% in Group II). The practice of eating green vegetables and taking tea after meals was more in Group I.

**Conclusions:** The results of our study showed that though Group II had better knowledge regarding IDA Group I followed more favourable practices. Our study, though small in size gives a glimpse of the greater picture. The attitude and practice of students and society in general needs to be improved with intensive media campaigns. Greater awareness about causes, prevention and treatment will go a long way in combating IDA.

**Keywords:** Iron deficiency anemia, Rural, Urban, Knowledge, Attitude, Practice

### INTRODUCTION

Anemia is a serious health problem worldwide. It reduces work efficiency causing generalized weakness and feeling of lethargy. Among all anemias, Iron Deficiency Anemia (IDA) is most prevalent anemia worldwide. In developing countries, the prevalence rate is higher (44%) as compared to developed countries (12%).<sup>1</sup> The World

Health Organization estimates that 58% of pregnant women in developing countries are anemic.<sup>2</sup> Women have additional iron requirements from puberty to menopause. This arises from the physiological needs of menstruation, pregnancy and to some extent in lactation. In adolescent girls, iron loss (basal plus menstrual loss) is 1.4 mg/day and requirement for pregnant women is about 1000 mg during second and third trimesters. In most

developing countries, the high iron demands of these groups are not met mainly because of poor availability of iron in tropical diets, thus leading to iron deficiency anemia.<sup>3</sup> Anemia not only has influence on physical development but has an effect on mental development.<sup>4</sup> Iron is required in body for oxygen transport by haemoglobin. It is an important part of enzymes in cellular oxidation. It also aids in phagocytosis and immune functions. Therefore, iron deficiency in body leads to impaired oxygen transport and oxygen delivery to tissues, defects in metabolism. Immunity is reduced, so person is susceptible to attack of infectious agents. Iron deficiency diminishes learning capacity and affects behavior and neurophysiological parameters.<sup>5</sup> The magnitude of anemia as health problem is huge and can be tackled with increasing awareness, promotion of correct attitudes and practices.

## METHODS

Study design: Cross sectional study.

The study group consisted of 50 medical students in the age group of 18-22 years. The students were divided in two groups: Group I consists of 25 students from rural background and Group II having 25 students from urban background. Study was conducted from 1 Feb 2015 to 15 March 2015. Students were given a structured questionnaire including name, age, parents' profession, background plus 26 questions based on anemia. Out of 26, 18 questions were based on knowledge, 4 on attitude of students towards anemia and 4 on practice.

Goal of our study was to compare the knowledge, attitude and practice of medical students coming from rural and urban background about anemia especially IDA.

The response was assessed using Percentage analysis and Chi square test.

## RESULTS

In our study all the participant students defined anemia as Hb <11 g/dl, RBC <4.5 million/cu.mm with generalized pallor. Out of 50 students 80% said percentage of anemic females are more in rural areas of India, 18% said in urban region and 2% reported anemic women are same in both rural and urban. 76% of Group I students and 92% of Group II students said Iron Deficiency Anemia (IDA) as the most common anemia worldwide. 60% of Group I students and 72% of Group II students told reduced intake and increased demand as most common causes of IDA. 88% of Group I students and 96% of Group II students said heavy menstrual bleeding as common cause of anemia in females. 76% students from Group I got information about IDA from teachers and books as compared to Group II (56%), whereas 44% of Group II students and 24% of Group I students got information from hospital hoardings, newspaper and media. Students from both groups were conversant with the rich sources

of iron. 60% of Group I students told jaggery and green leafy vegetables as a rich source of iron, whereas 36% of Group II participants had knowledge of the same. 92% of students from Group II and 76% of students from Group I said that the prevalence of IDA in pregnancy was 60%. 76% of Group I students said generalized weakness, breathlessness and palpitations were the most common symptoms of anemia, whereas 84% of Group II students had knowledge about these symptoms. 76% of Group I students and 90% of Group II students knew the commonest signs of anemia. According to Group II the most common cause of anemia in children was reduced intake and worm infestation (92%) and reduced intake and diarrhea was told by Group I (72%). 88% of Group II students and 52% of Group I students were having knowledge about PICA. 88% of Group I students and 96% of students belonging to Group II told ferritin as a storage form of iron while remaining students in both groups told apoferritin as a storage form. 92% of the students of urban background (Group II) had knowledge of PBF and Hb estimation as investigations for IDA, apart from that, 72% of rural students (Group I) reported the same. 88% of students of Group II had knowledge about Government policy of oral and parenteral iron whereas 68% of Group I students were aware of the same. Both groups had attitude that pubertal girls should consume diet rich in iron and also pregnant and lactating women need iron supplementation in addition to balanced diet. 92% of Group II students had favourable attitude towards consumption of additional iron supplementation in infants, whereas 72% of Group I students were of the same attitude. All students from Group II had attitude that vitamin C enhances iron absorption, while 92% of Group I students were of the same attitude. 28% of Group II students practiced iron supplementation whereas 8% of Group I students did. The favourable practice of using iron utensils and eating green leafy vegetables were more in Group I students. 48% Group I participants took tea immediately after meals whereas 16% of Group II did the same.

## DISCUSSION

In our study 60% of Group I students and 72% of Group II students told reduced intake and increased demand as most common causes of IDA. Inadequate dietary intake of iron, B complex vitamins and ascorbic acid has also been observed among young women. In India anemia appears to be caused mainly by lower dietary intake and poor absorption of iron from cereal based vegetarian diets, which leads to nutritional anemia in more than 80% of women because of excessive body needs.<sup>6</sup> 88% of Group I students and 96% of Group II students said heavy menstrual bleeding as common cause of anemia in females. A study from Nigeria quantifying menstrual blood loss also found heavy menstrual bleeding, present in 12.1%, to be one of the most important contributing factors to iron deficiency anemia.<sup>7</sup> 92% of students of Group II and 76% of students from Group I said that the prevalence of IDA in pregnancy was 60% whereas

studies in Pakistan, Colombo, Sri Lanka, South Africa and Ireland showed prevalence of iron deficiency of 30% to 59%.<sup>8-10</sup> A study by Kaur S 2006 showed a prevalence of 59.8% of nutritional anaemia in adolescent girls of rural Wardha.<sup>11</sup> 60% of rural students told jaggery and green leafy vegetables as a rich source of iron whereas 36% of urban students had knowledge of the same, probably because of eating habits in rural areas. All students from Group II had the attitude that vitamin C enhances iron absorption, while 92% of Group I students were of the same attitude. The practice of eating green leafy vegetables was more in Group I as compared to Group II. The unfavorable practice of taking tea immediately after meals was more amongst Group I students. Food based strategies to address iron deficiency anemia among Indian women include consumer education to encourage diversification of the diet to include iron-rich foods, improving popularity and consumer accessibility as well as behavior to foods and fruits that contain vitamin C which enhances iron absorption.<sup>12</sup>

According to Group II the most common cause of anemia in children was reduced intake and worm infestation (92%) and reduced intake and diarrhea was told by Group I (72%). Leenstra et al. showed that malaria and schistosomiasis were the main risk factors for anemia in young adolescent girls.<sup>13</sup> 88% of Group I students and 96% of students belonging to Group II told ferritin as a storage form of iron while remaining students in both groups told apoferritin as a storage form. Incorporation of serum ferritin estimates in future studies will increase the validity of iron deficiency anemia estimates among Indian women.<sup>14</sup>

Both groups were having attitude that pubertal girls should consume diet rich in iron and also pregnant and lactating women need iron supplementation in addition to balanced diet. Iron and folic acid supplementation in pubertal girls goes a long way in building up their iron stores. By targeting adolescent girls who are soon to enter married life and motherhood, a lasting solution to problem of anemia in pregnant women can be attempted.

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