

Assessment of Prevalence of Anaemia among Rural Population: An Observational Institutional Based Study

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ABSTRACT

Background: Anemia is a commonly encountered medical condition affecting a major proportion of rural population. In an individual patient it may be that some decline in haemoglobin occurs as part of normal ageing, but that disease may also contribute to the development of anaemia. Hence; we planned the present study to assess the prevalence of anaemia among rural population.

Materials & Methods: The present study included assessment of prevalence of anaemia among rural population. A total of 200 patients reporting to the rural health centre of the Rama Medical College Hospital & Research Centre, Pilkhuwa, Hapur, Uttar Pradesh (India) for medical check-up were included in the present study. Fasting blood samples were obtained from all the patients. Sallies method was used for evaluation of haemoglobin (Hb) concentration and categorization of anaemia. Anaemia was categorized into mild, moderate and severe. Complete demographic and clinical details of all the subjects were obtained.

Results: The prevalence percentage of was found to be 26 percent (56 patients). Anemia was found to more commonly

affecting females (56.9 percent of the patients) in comparison to the males (43.1 percent of the patients). Majority of the patients in the present study had moderate type of anaemia.

Conclusion: Among the rural population, anaemia is present in significant proportion, with females getting affected more commonly than males.

Key words: Anaemia, Prevalence, Rural.

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INTRODUCTION

Iron is a trace element that is required for numerous cellular metabolic functions. As iron is toxic when present in abundance, tight regulation is required to avoid iron deficiency or iron overload. The adult body contains 3–4 g of iron. Anemia is defined by a decrease in the total amount of hemoglobin or the number of red blood cells.¹⁻³ Anaemia is often defined in terms of the WHO criteria, established in 1968. The WHO definition of anaemia is a haemoglobin (Hb) concentration <130 g/L in men, and <120 g/L in women. There has been debate about the use of these values, and in particular, whether they should be used to define anaemia in older people, but there is no widely accepted alternative definition of anaemia in this age group.⁴⁻⁶ In general, haemoglobin levels are lower in older than in younger people. The reasons for this are not completely understood. It is unclear whether haemoglobin falls in older people because this is a feature of normal ageing, or whether it is always pathological, even if underlying conditions cannot be identified. In an individual patient it may be that some decline in haemoglobin occurs as part of normal ageing, but that disease may also contribute to the development of anaemia.^{7, 8} Hence; we planned the present study to assess the prevalence of anaemia among rural population.

MATERIALS & METHODS

The present study was planned in the Department of General Medicine, Rama Medical College Hospital & Research Centre, Pilkhuwa, Hapur, Uttar Pradesh (India).

It included assessment of prevalence of anaemia among rural population. All the patients reporting to the rural health centre of the institution for medical check-up were included in the present study.

Inclusion criteria for the present study included:

- Patients between the age group of 20 to 60 years,
- Patients who gave written consent for the study,
- Patients with negative history of any other systemic illness,

A total of 200 patients were included in the present study. Fasting blood samples were obtained from all the patients. Sallies method was used for evaluation of haemoglobin (Hb) concentration and categorization of anaemia.

Anaemia was categorized into mild, moderate and severe as follows:

Mild Anaemia: Hb concentration between 9.1 to 12 gm%,

Moderate Anaemia: Hb concentration between 7 to 9 gm%,

Severe Anaemia: Hb concentration less than 7 gm%,

Complete demographic and clinical details of all the subjects were obtained. All the results were compiled in Microsoft excel sheet

and were analyzed by SPSS software. Univariate regression curve was used for assessment of level of significance.

Table 1: Prevalence of anaemia

Parameter	Number of patients	Prevalence percentage
Prevalence of anaemia	58	26 %

Table 2: Age-wise distribution of anaemic subjects

Age group	Number of subjects	Percentage
20- 30	18	31.04
31- 40	10	17.24
41- 50	20	34.48
51- 60	10	17.24
Total	58	100

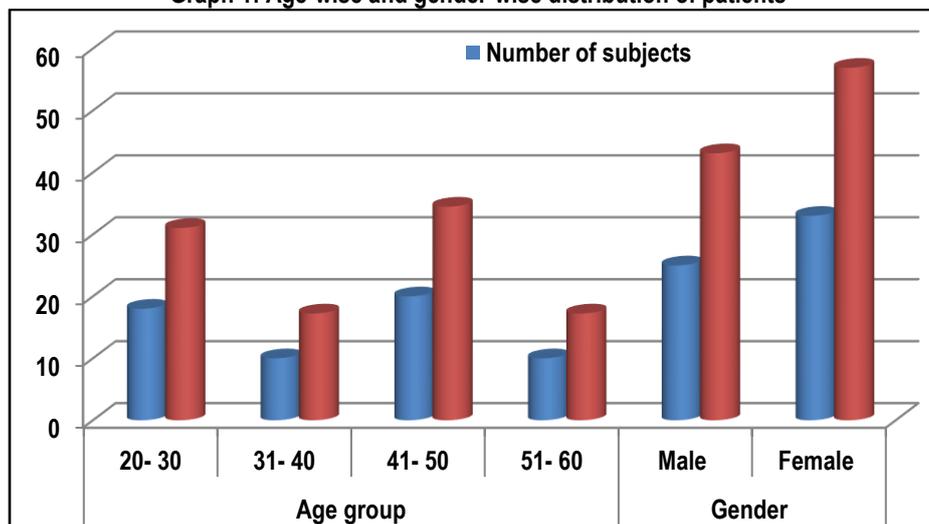
Table 3: Gender-wise distribution of anaemic subject

Gender	Number of subjects	Percentage
Male	25	43.1
Female	33	56.9
Total	58	100

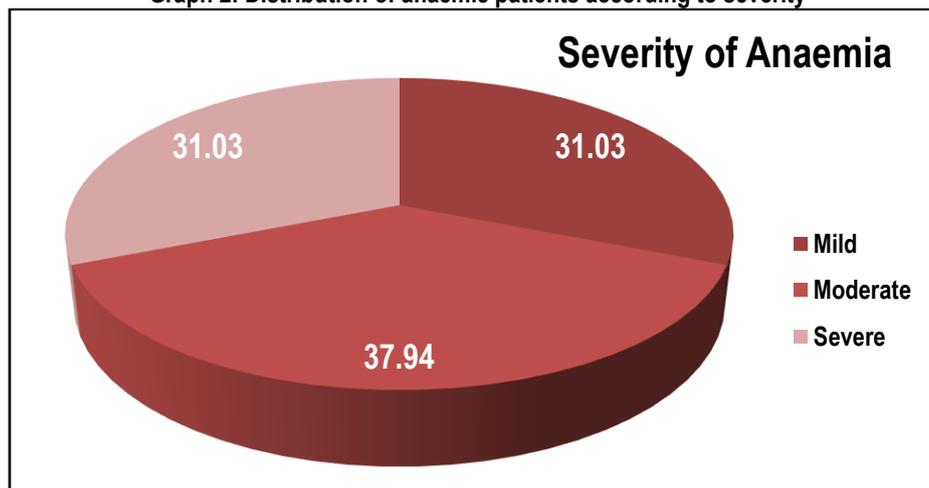
Table 3: Distribution of subjects according to severity of anaemia

Severity of anaemia	Number of subjects	Percentage
Mild	18	31.03
Moderate	22	37.94
Severe	18	31.03
Total	58	100

Graph 1: Age-wise and gender-wise distribution of patients



Graph 2: Distribution of anaemic patients according to severity



RESULTS

A total of 200 patients reporting to rural centre of institution were included in the present study. The prevalence percentage of was found to be 26 percent (56 patients). Majority of the anaemic patients in the present study belonged to the age group of more 41 to 50 years. Anemia was found to more commonly affecting females (56.9 percent of the patients) in comparison to the males (43.1 percent of the patients). Majority of the patients in the present study had moderate type of anaemia.

DISCUSSION

In the present study, we analyzed a total of 200 patients. The prevalence percentage of was found to be 26 percent (56 patients). Majority of the patients in the present study had moderate type of anaemia. Malhotra P et al assessed the prevalence of anemia in adult males and non-pregnant females of rural north Indian population. During an epidemiological survey on hypertension in rural population of north India (n=2559), a random sample of 215 individuals underwent blood investigations including hemoglobin estimation. The overall prevalence of anemia in 16-70 years of age group was 47.9% (n=215), being 50% (n= 136) among females and 44.3% (n=78) among males. Low socioeconomic status, illiteracy and lower body mass index, were associated with higher prevalence of anemia.⁹

Alvarez-Uria G et al performed a retrospective observational study using routine clinical data from patients attending the out-patient clinics of a rural hospital in India from June 2011 to August 2014. The study included 73,795 determinations of haemoglobin. 49.5% of patients were female. The median haemoglobin concentration was 11.3 g/dL (interquartile range (IQR), 9.8–12.4) in females and 12.5 g/dL (IQR, 10.6–14.2) in males. Anaemia was present in the majority of children <10 years, women after puberty, and older adults. Children <5 years had the highest prevalence of anaemia, especially children aged 1-2 years. The high proportion of microcytic anaemia and the fact that gender differences were only seen after the menarche period in women suggest that iron deficiency was the main cause of anaemia. However, the prevalence of normocytic anaemia increased with age.¹⁰ Arlappa N et al assessed the prevalence of anaemia among rural pre-school children. A community-based cross-sectional study was carried out in rural areas of West Bengal State during 2002-2003. A total of 437 pre-school children were covered for the estimation of blood haemoglobin levels. A majority (81%) of the rural children of West Bengal were anaemic, and the prevalence was significantly (p<0.001) higher among 1-3-year-old (91%) as compared to 4-5-year-old (74.6%) children. A significantly (p<0.01) higher proportion of 1+ and 2+ year children and those belonging to lower socio-economic Scheduled Caste and Scheduled Tribe communities were at risk for anaemia. The prevalence of anaemia is a severe nutritional problem of public health significance. Therefore, iron supplementation and health and nutrition education programmes should be strengthened.¹¹

Chaudhary SM et al estimated the prevalence of anemia among adolescent females and to study the socio-demographic factors associated with anemia. A cross-sectional survey was conducted in an urban area under Urban Health Training Center, Department of Preventive and Social Medicine, Government Medical College and Hospital, Nagpur. A total of 296 adolescent females (10–19 years old) were included in this study. The study took place from

October 2002 to March 2003 (6 months). Statistical analyses were done using percentage, standard error of proportion, Chi-square test, and Student's 't' test. The prevalence of anemia was found to be 35.1%. A significant association of anemia was found with socio-economic status and literacy status of parents. Mean height and weight of subjects with anemia was significantly less than subjects without anemia. A high prevalence of anemia among adolescent females was found, which was higher in the lower socio-economic strata and among those whose parents were less educated. It was seen that anemia affects the overall nutritional status of adolescent females.¹² Choudhary A et al determined the prevalence of anaemia among unmarried, adolescent south Indian girls in an urban slum setting. A total of 100 apparently healthy girls between the ages of 11 and 18 years were recruited. Their socioeconomic, dietary and anthropometric information was collected, and blood haemoglobin (Hb) was estimated. The prevalence of anaemia (Hb < 12 g%) was 29%. Most had mild anaemia; severe anaemia was not seen. Two-thirds of those with anaemia had low serum ferritin (<12 microg/L). Significant associations were observed between anaemia and low socioeconomic status, religion and reporting infrequent/non-consumption of meat (heme iron). Only meat consumption was related to haemoglobin by multiple regression analysis. Anaemia is a common problem among adolescent girls in this setting, though severe anaemia is rare.¹⁴

CONCLUSION

Among the rural population, anaemia is present in significant proportion, with females getting affected more commonly than males. However; future epidemiological studies are recommended for better exploration of this field of medicine.

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