

ANALYSIS OF ANEMIA PREVALENCE IN A TERTIARY CARE HOSPITAL AMONG LOW SOCIOECONOMIC STATUS PATIENTS

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Abstract

Background: Anemia is a significant public health problem that affects the quality of life and job ability of a large number of people worldwide. It is noted that the prevalence of anemia in both sexes is due to many variables, such as insufficient consumption of nutrients and socioeconomic history.

Aims & objectives: To assess the incidence of anemia in patients of lower socio-economic status who have been admitted to a tertiary health centre under different departments.

Methods: The study is a retrospective examination of a span of two years of medical case reports. A total of 2152 case records obtained from Complete Blood Count were analyzed based on age, gender, different Departments & Haemoglobin Concentration. For assessing the severity of anemia, the guidelines set by the World Health Organization have been adopted.

Results: 56 percent of the 2152 patients had anemia. In females, there was a large preponderance of 75% (out of the total female cases) compared to 31% of males (out of the total male cases). 73 per cent had moderate anemia, according to the assessment, but only less than 10 per cent had serious anemia.

Conclusion: The prevalence of anemia was 56 percent in this sample. Most of them had latent anemia that was asymptomatic during hematological examination. Thus, before progressing to serious anemia, patients must be tested. This research highlights the value of providing health education along with dietary supplements on the adverse effects of anemia & lifestyle changes.

Keywords: anemia, complete blood count, low socioeconomic status.

Introduction

The presence of insufficient red blood cell mass to provide oxygen adequately to the peripheral tissues is functionally known as anemia. It may be due to reduced output of red blood cells, increased clearance of red blood cells, or both. It can be induced by causes that are intrinsic or extrinsic¹. Hemoglobin concentrations of less than 13 gm per decilitre of blood in adult males, less than 12 gm per decilitre in adult non-pregnant females and less than 11 gm per decilitre of blood in pregnant women are classified as anemia. When haemoglobin concentration is between 11 gm per decilitre to 11.9 gm per decilitre, Moderate Anemia when haemoglobin is between 8 gm per decilitre to 10.9 gm per decilitre & Serious Anemia when haemoglobin is less than 8 gm per decilitre, Anemia is classified as Mild Anemia. Prevalence is characterized as the total number of individuals who at a particular time or during a specific period have an attribute or disease divided by the population at risk of having the attribute or disease at that time or halfway through the period. India has been & continues to be a nation with the world's highest prevalence of anemia^{2,3}. India is host to the world's largest number of anemic individuals. More than a quarter of the world's

population remains anemic, amid global economic and scientific growth. Anemia is a public health issue that affects low, middle and high income countries. It affects the lives of millions of individuals that lead to impaired cognitive growth, increases vulnerability to various forms of diseases, and impairs the ability to function^{4,5}. In 2008, the World Health Organization estimated that 25% of the world's population was affected by anemia, 42% of whom were pregnant women, 30% of non-pregnant women, and 47% of pre-school children^{6,7}. The estimated prevalence of anemia in developing countries is 42 percent for women aged 15 to 60 years, 30 percent for men aged 15 to 60 years, and 45 percent for adults over 60 years of age. The prevalence of anemia was 51 percent in non-pregnant women aged 15 to 49 years, 60 percent in pregnant women, and 19 percent in men aged 15 to 49 years, in the National Family Health Survey (NFHS-4)^{8,9}.

Aims & objectives: To assess the incidence of anemia in patients of lower socio-economic status who have been admitted to a tertiary health centre under different divisions.

Materials & Methods

It is a retrospective study of medical case documents for a period of two years. All patients under 15 years of age,

chemotherapy patients, and radiation patients were removed from the study.

Design of the study: Medical case documents were obtained from the Department of Medical Records. All case records for age, gender, departments using fixed proforma were analyzed. Total Blood Count study from the Department of Pathology, where 3 ml of blood was collected in an ethylene-diamine tetra-acetic acid (EDTA) vacutainer under aseptic precautions after venipuncture and analyzed using Automated Analyser. A fixed proforma was used to analyze the Complete Blood Count report that includes haemoglobin concentration, Mean Corpuscular Volume (MCV), Mean Corpuscular Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC), Red Blood Cell Count, Total Leukocyte Count & Platelet Count. Based on the WHO specifications, they were graded as Mild, Moderate & Extreme Anemia. For specialized investigations such as peripheral Smear Analysis, serum vitamin B12 assay, Iron Profile, Liver function test, Renal function test & sonography studies, all anemic patients were further evaluated as needed.

Results & Observation

Our research involves 2152 patients admitted from Central India to different departments of a tertiary healthcare center.

Table 1: Showing the cases of anemia in all analyzed patients

Total number of Cases	Number of anemic patients	Percentage
2152	1202	56 %

There were 1202 (56 percent) patients in 2152 cases who were considered to be anemic.

Table 2: Showing the cases of anemia in different Age groups.

Age	Total no. of cases	Anemia	Percentage
15 – 50 yrs	1336	752	56 %
> 50 yrs	816	450	55 %

Of the 2152 patients, 1336 were in the 15- to 50-year age group, of whom 752 (56 percent) were found to be anemic, and 816 were in the 50-year age group, of whom 450 (55 percent) were anemic.

Table 3: Gender wise distribution

Cases	Male	Female	Transgender
Total no. of cases	910	1240	2
Anemia	278	924	
Percentage	31 %	75 %	

Of the 2152 patients, 910 were males, of whom 278 (31 percent) were found to be anemic. 1240 women were patients, 924 (75 percent) were anemic, and 2 were transgendered.

Table 4: Showing cases of anemia in various department

Departments	Total no. of cases	Anemia	Percentage
Medicine & allied	800	438	55 %
Obstetrics & Gynecology	440	348	79 %
Surgery & allied	912	416	46 %

In the Medicine & Allied Departments, 800 cases were admitted among 2152 patients, of which 438 (55 percent) were anemic. In the Department of Obstetrics & Gynecology, 440 cases were admitted, of which 348 (79%) were anemic, and 912 patients were admitted to surgery & associated units, of which 416 (46%) were found to be anemic.

Table 5: Showing cases of severity among anemic patients

Grades	Number of Cases	Percentage
Mild	874	73 %
Moderate	220	18 %
Severe	108	9 %

874 (73%) patients were mild anemic, 220 (18%) patients were moderate anemic, and 108 (9%) patients were severe anemic, out of 1202 anemic patients.

Discussion

The prevalence of anemia is 56 percent in this retrospective review of medical case reports, compared with the prevalence of anemia in developed countries by the World Health Organization being 42 percent in women aged 15 to 59 years & 30 percent in men aged 15 to 59 years. As per National Family Health Surveys conducted in 1998-99, 2005-2006 & 2015-2016, the prevalence of anemia in India was 49.7% in NFHS 2 (1999), 58.3% in NFHS 3 (2006) & 50.3% in NFHS 4. (2016). Although the prevalence of anemia has been reduced from 58.3 percent (NFHS 3) to 50.3 percent (NFHS 4), there is no substantial difference in the prevalence of anemia recorded in NFHS 2 (49.7 percent) and NFHS 4 (50.3 percent).

In a study conducted in Vellore, the prevalence of anemia was 62% among pregnant women. The prevalence of anemia in a study conducted in Bengaluru was 66 percent among pregnant women^{6,7}. In sex, this study reveals that 75 percent of women are anemic compared to 30 percent of men. The prevalence of anemia was 50.8 percent in females & 19 percent in males, as per NFHS-4. The prevalence of anemia was 72 percent to 76 percent in women and 56 percent to 78 percent in men, as per the District Level Household & Facility Survey -4. As per AHS, the prevalence of anemia is 86 percent in women and 76

percent to 89 percent in males. According to the World Health Organisation, the prevalence of anemia is estimated at 42 percent in women aged 15 to 59 years, 30 percent in men aged 15 to 59 years, and 45 percent in patients over 60 years of age. According to the District Level Household & Facility Study, the prevalence of anemia among patients aged 15 to 59 years is about 72 percent and 78 percent among patients aged more than 60 years^{8,9}. The prevalence of anemia is 86 percent among patients aged 15 to 59 years and about 89 percent among patients aged more than 60 years, according to the AHS. 79 percent of patients admitted to obstetrics & gynecology in separate departments, 55 percent in pharmacy & allied departments, and 45 percent in surgery & allied departments are found to be anemic. 73 percent were found to have mild anemia among the total cases of anemia, 18 percent had moderate anemia, and 9 percent had severe anemia. In this sample, the prevalence of extreme anemia is 9 percent compared to 2 percent in a study at Bengaluru Tertiary Care Hospital, urban Karnataka. In this report, the prevalence of mild anemia is 73 percent compared to 48 percent in a study in Bengaluru & 30 percent in Vellore. In this sample, the prevalence of moderate anemia is 18 percent, compared with 50 percent in Bengaluru and 31 percent in Vellore¹⁰.

Conclusion

As the burden of anemia is still high, anemia continues to be a major public health issue in India. The prevalence of moderate anemia in our research is 72 percent. In order to prevent them from worsening from mild to moderate or extreme anemia, the diagnosis of mild anemia is very critical in all hospitalized patients, regardless of symptoms in all units. For latent anemia identification, it is very important to review the Full Blood Count reports regardless of the complaints. Compared to males, the incidence of anemia is greater in females, so more consideration needs to be paid to all female patients for anemia diagnosis and care.

References

1. Saxena R, Mahapatra M. API Textbook of Medicine Vol 1 Edition 9. India: Association of physician of India; 2012. Section 15(2), Anemia-A clinical approach; P 922-92.
2. Park's Textbook of Preventive & social medicine, 25th edition. P 56-58.
3. Ramachandran P, Kalaivani K. Prevalence of Anemia in India & strategies for achieving sustainable development goals (SDG) Target. Proc Indian Natn Sci Acad. December 2018; 84(4): 899-912.
4. Pasricha S, Drake smith H, Black J, Hipgrave D, Biggs B. Control of IDA in low & middle income countries. Blood 2013 Apr 4; 121(14): 2607-17.
5. De benoist B, McLean E, Egli I, Cogswell M. "World wide prevalence of anemia 1993-2005: WHO Global data base anemia". World Health Organization 2008.
6. Alvarez-Uria G, Naik P K, Midde N, Yalla P S, Pakam R. Prevalence & Severity of Anemia Stratified by Age & Gender in Rural India. Vol 2014, Article ID 176182.
7. International Institute for Population Sciences. India fact sheet. National family health survey 2015-16 (NFHS-4); 2016a. Available from: <http://www.rchiips.org/nfhs/pdf/NFHS-4/India.pdf>.
8. Manju M, Yadav S, Deshpande A, Mehrotra H. A study of the prevalence of anemia & associated socio-demographic factors in pregnant women in Port Blair, Andaman & Nicobar Islands. J Family Med Prime Care. 2018; Vol 7(6): 1288-93.
9. Vindhya J, Nath A, Murthy G V, Metgud C, Sheeba B, Shubhashree V, Srinivas P. Prevalence & risk factors of anemia among pregnant women attending a public sector hospital in Bengaluru, South India. J Family Med Prime Care 2019; Vol 8(1):37-43.
10. Madhu priya N, Yadav B, Jose R. Prevalence of anemia among pregnant women at booking visit in India, Vellore. Indian Journal of Obstetrics & Gynecology Research 2017; 4(3):244-48.