

Study of prevalence of anaemia among low socioeconomic status patients in a tertiary care hospital

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Abstract

Background: Anaemia is a major public health issue affecting the quality of life and work capacity of large number of population throughout the world. It is being observed that prevalence of anaemia in both the genders is due to several factors like improper nutrition intake and socioeconomic background. The objective of the study is to determine the prevalence of anaemia among lower socioeconomic status patients admitted under various departments at Shridevi Institute of Medical Science and Research Hospital, Tumkur under Employees State Insurance scheme (ESI). **Methods:** The study is a retrospective analysis of Medical case records for a period of one year from April 2018 to March 2019. A total of 1076 case records were analyzed based upon age, sex, various Departments and Hemoglobin Concentration obtained from Complete Blood Count. The criteria laid down by WHO were taken for determining the severity of anaemia. **Results:** Among 1076 patients, 55.85 % (n=601) had anaemia. There was a significant preponderance of females accounting for 74.71% as compared to 30.54% of males. According to the assessment, 72.7% had Mild anaemia but only less than 10% had severe anaemia. **Conclusion:** This study showed the prevalence of anaemia to be 55.85%. On hematological assessment majority of them had latent anaemia which was asymptomatic. Thus patients have to be evaluated before it progresses to severe anaemia. This study emphasizes on the importance of providing health education on the ill-effects of anaemia and life style modifications along with nutritional supplementation. **Key Word:** anaemia.

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INTRODUCTION

Anaemia is functionally defined as the presence of insufficient red blood cell mass to deliver oxygen adequately to the peripheral tissues. It may be due to decreased red blood cell production, increased red blood

cell clearance or both. It can be caused by intrinsic or extrinsic reasons. Anaemia is defined as hemoglobin concentration of less than 13 gm per deciliter of blood in adult male, less than 12 gm per deciliter in adult non pregnant female and less than 11gm per deciliter in pregnancy¹. Anaemia is graded as Mild Anaemia when hemoglobin concentration is between 11 gm per deciliter to 11.9 gm per deciliter, Moderate Anaemia when hemoglobin is between 8gm per deciliter to 10.9 gm per deciliter and Severe Anaemia when haemoglobin is less than 8gm per deciliter². Prevalence is defined as the total number of all individuals who have an attribute or disease at a particular time or during a particular period divided by the population at risk of having the attribute or disease at that point in time or midway through the period³. India has been and continues to be a country with the highest prevalence of anaemia in the world. India is home to the

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largest number of anaemic people in the world⁴. Despite worldwide economic and scientific development, more than a quarter of the world's population remains anaemic². Anaemia is of public health concern that affects countries with low, middle and high income. It impacts the lives of millions of people contributing to poor cognitive development and increases the susceptibility to different kinds of infections and impairs the work capacity⁵. In 2008 World Health Organisation reported 24.8% of the world's population is affected by anaemia of whom 42% were pregnant women, 30% non-pregnant women and 47% were preschool children⁵. The estimated prevalence of anaemia in developing countries is 42% in women aged between 15yrs to 59yrs, 30% in men aged between 15yrs to 59yrs and 45% in adults more than 60yrs². In the National Family Health Survey (NFHS-4 2015-16) the prevalence of anaemia was 50.8% in non-pregnant women aged 15-49yrs, 60.4% in pregnant women and 19.0% in men aged between 15yrs to 49yrs⁶. Shridevi Institute of Medical science and Research Hospital situated in southern part of Karnataka is the only inpatient health care service provider for Employee State Insurance (ESI) scheme in Tumkuru District. Employee State Insurance scheme includes patients from low-socioeconomic status with monthly income of less than 15,000 rupees who belong to lower middle class according to Modified Kuppaswamy classification³. The aim of the study is to analyze the prevalence of Mild, Moderate and Severe anaemia among different age group and sex admitted in the various Departments of Shridevi Institute of Medical science and Research Hospital for different complaints.

MATERIALS AND METHODS

It is a retrospective analysis of Medical case records for a period of one year from April 2018 to March 2019. All the patients admitted under Employee State Insurance scheme to various departments of Shridevi Institute of Medical Science and Research Hospital were included in the study. All the patients with age less than 15 years, patients on chemotherapy and patients on radiation were excluded from the study.

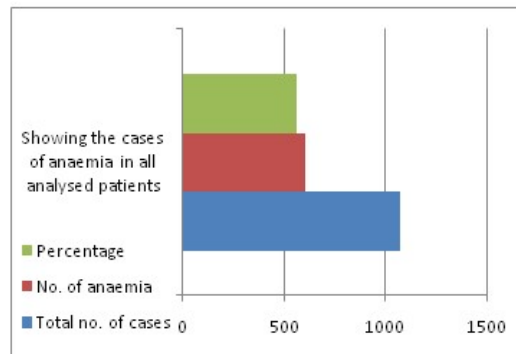
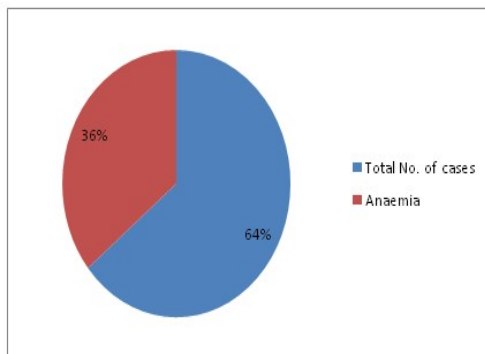
Study design: Medical case records were collected from Medical Record Department of Shridevi Institute of Medical Science and Research Hospital. All the case records were analysed for age, sex, departments using fixed performa. Complete Blood Count report collected from the Department of Pathology where 3ml of blood was collected under aseptic precautions after venipuncture in an ethylenediamine tetraacetic acid (EDTA) vacutainer and were analyzed using Automated Analyser. The Complete Blood Count report which includes haemoglobin concentration, Mean corpuscular volume (MCV), Mean Corpuscular Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC), Red Blood Cell Count, Total Leucocyte Count and Platelet Count were analyzed using a fixed performa. They were classified as Mild, Moderate and severe anaemia based on the WHO criteria. All the anaemic patients were further evaluated as required for specialized investigations like peripheral Smear Examination, serum vitamin B12 assay, Iron Profile, Liver function test, Renal function test and sonography studies.

RESULTS AND OBSERVATION

Our study includes 1076 patients admitted to various Departments of Shridevi Institute of Medical Science and Research Hospital.

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

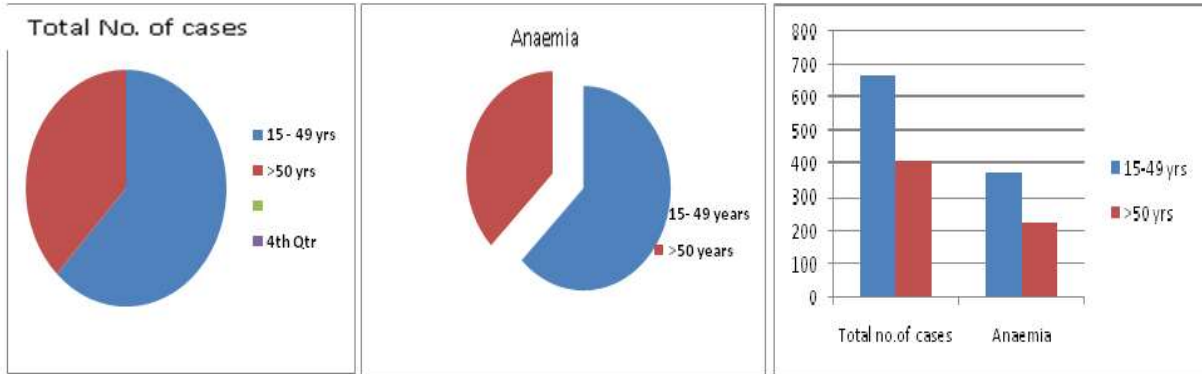
Total number of Cases	Number of anaemia	Percentage
1076	601	55.85%



Among 1076 patients, there were 601 (55.85%) patients were found to be anaemia

Table 2: Showing cases of anaemia in different Age group (15-49yrs and >50yrs).

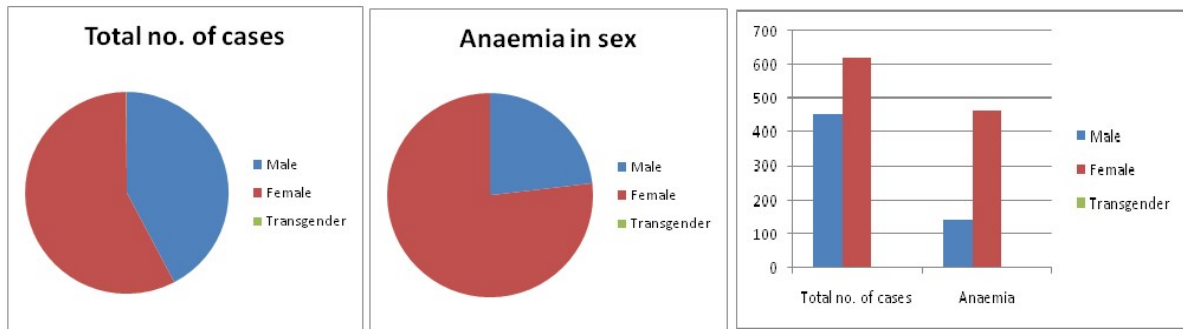
Age	Total no. of cases	Anaemia	Percentage
15-49yrs	668	376	56.28%
>50yrs	408	225	55.14%



Among 1076 patients, 668 were in the age group of 15 to 49years, among which 376 (56.28%) were found to be anaemic and 408 patients in the age group of more than 50 years, in that 225 (55.14%) were anaemic.

Table 3: showing anaemia in different Sex

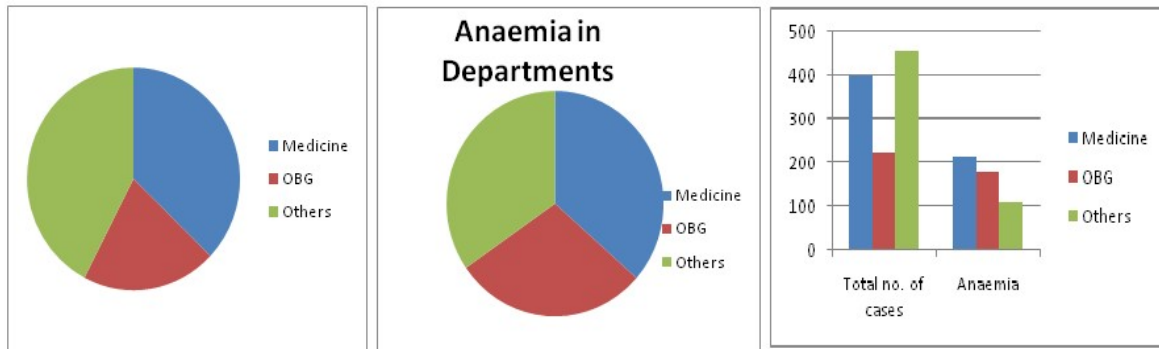
Cases	Male	Female	Transgender
Total no. of cases	455	620	1
Anaemia	139	462	
Percentage	30.54%	74.51%	



Among 1076 patients, 455 patients were males, among which 139 (30.54%) patients were found to be anaemic. 620 patients were females, in that 462 (74.51%) were anaemic and 1 transgender.

Table 4: Showing cases of anaemia in various departments.

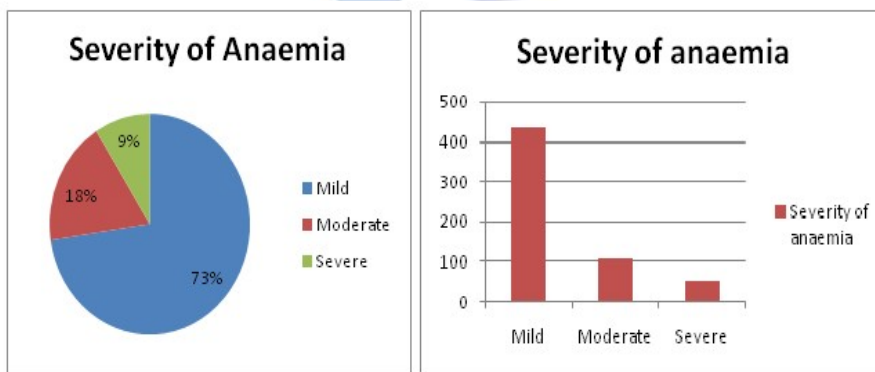
Departments	Total no. of cases	Anaemia	Percentage
Medicine	400	219	54.75%
OBG	220	174	79.09%
Others	456	208	45.61%



Among 1076 patients, 400 cases were admitted in Medicine department, among which 219 (54.75%) were anaemic. 220 cases were admitted in Obstetrics and Gynaecology department, among which 174 (79.09%) were anaemic and 456 patients were admitted in surgery and orthopedics department, in which 208 (45.61%) were found to be anaemic.

Table 5: showing cases of severity among anaemic patients.

Grades	Number of Cases	Percentage
Mild	437	72.71%
Moderate	110	18.30%
Severe	54	8.98%



Among 601 anaemic patients, 437 (72.71%) patients were mild anaemia, 110 (18.30%) patients were moderate anaemia and 54 (8.98%) patients were severe anaemia

DISCUSSION

In this retrospective analysis of Medical case records of Employee State Insurance (ESI) inpatients admitted in Shridevi Institute of Medical Science and Research Hospital, Tumakuru situated in southern part of Karnataka, the prevalence of anaemia is 55.85 % compared to World Health Organization prevalence of anaemia in developing countries being 42% in women aged 15 to 59 years and 30% in men aged between 15 to 59 years. The prevalence of anaemia in India as per National Family Health Surveys conducted in years 1998-99, 2005-2006 and 2015- 2016 were 49.7% in NFHS 2(1999), 58.3% in NFHS 3(2006) and 50.3% in NFHS 4(2016). Although there has been reduction in the prevalence of anaemia from 58.3% (NFHS 3) to 50.3% (NFHS 4), there is no much difference in the prevalence of anaemia reported in NFHS 2(49.7%) and NFHS 4

(50.3%). The prevalence of anemia is 45.4% in Karnataka as per NFHS 4 survey. The prevalence of anemia was 62% among pregnant women in a study conducted at Vellore¹¹. The prevalence of anemia was 66.1% among pregnant women in a study conducted at Bengaluru urban Karnataka¹². Among sex, this study shows 75% of females to be anaemic compared to 30% among males. As per NFHS -4 the prevalence of anaemia was 50.8% in women and 19% in men. As per DLHS-4 the prevalence of anemia was 72% to 76% in females and 56% to 78% in males. As per AHS the prevalence of anemia in females is 86% and in males is 76% to 89%. Among the age as per World Health Organisation estimated prevalence of anaemia is 42% in women aged between 15-59yrs, 30% in men aged between 15-59 years, 45% in patients more than 60yrs. As per DLHS the prevalence of anemia is around 72% in patients aged between 15 to 59 years and

78% among patients aged more than 60 years. As per AHS the prevalence of anemia is 86% among patient aged between 15 to 59 years and around 89% among patients aged more than 60 years. Among the patients admitted in various departments 79% admitted in Obstetrics and Gynaecology, 55% in medicine and 45% in Surgery departments are found to be anaemic. Among the total cases of anaemia, 73% were found to have mild anaemia, 18% have moderate anemia and 8.9% have severe anaemia. The prevalence of severe anemia is 8.9% in this study compared to 2.1% in a study at a tertiary care hospital at Bengaluru; urban Karnataka¹⁰. The prevalence of mild anemia is 72.7% in this study compared to 48% in a study at Bengaluru¹⁰ and 30% at Vellore¹¹. The prevalence of moderate anemia is 18.3% in this study compared to 49.5% at Bengaluru and 31.2% at Vellore.

CONCLUSION

Anaemia continues to be a major public health concern in India as the burden of anemia is still high. In our study the prevalence of Mild anemia is 72%. Detection of mild anemia is very important in all inpatients irrespective of symptoms in all the departments so as to prevent them from progressing from mild to moderate or severe anemia. Analyzing the Complete Blood Count reports irrespective of the complaints is very important for detection of latent anaemia. Prevalence of anaemia is more in females as compared to males, so more attention has to be given to all female patients for detection and treatment of anaemia.

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