



## A CLINICO AETIOLOGICAL PROFILE OF ANAEMIA IN ELDERLY: A HOSPITAL BASED STUDY

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**ABSTRACT** **BACKGROUND:** Anaemia should not be accepted as an inevitable consequence of aging. A cause is found in approximately 80 percent of elderly patients. The most common causes of anaemia in the elderly are chronic disease and iron deficiency. Vitamin B deficiency, folate deficiency, gastrointestinal bleeding and myelodysplastic syndrome are among other causes of anaemia in the elderly. [1]

**AIM:** To study the clinical patterns and aetiologies of anaemia in the elderly.

**MATERIALS AND METHODS:** A hospital-based prospective observational study, conducted in elderly patients aged 60 years and above in the Department of General Medicine, Santhiram Medical College and General Hospital, Nandyal. Anaemia is defined as haemoglobin level less than 13 g/dl in men and 12 g/dl in women.

**RESULTS:** Among the study population of 60 elderly patients, 53.3% are normocytic, 40% are microcytic, and 6.7% are macrocytic. 3.33% have pancytopenia. Most common aetiology is anaemia of chronic disease(40%) while other causes include nutritional anaemias, chronic kidney disease, and haematological diseases.

**CONCLUSIONS:** Majority of elderly patients with anaemia can be treated. Early diagnosis, dietary advice, and appropriate management can help in the reduction of morbidity and mortality.

### KEYWORDS :

#### INTRODUCTION:

Anaemia is common in the elderly. It is independently associated with increased mortality and morbidity, according to a study conducted by Izaks et al. [2]. Anaemia reduces functional capacity and quality of life. At old age, anaemia is a risk factor for cognitive and functional impairment, cardiovascular disease, frailty, falls, hospitalization and complications, and has an impact on the quality of life [3]. According to the results of some epidemiologic studies, the prevalence of anaemia among adults increases sharply after the age of 60. [4]

In terms of the WHO criteria, established in 1968, the definition of anaemia is a haemoglobin (Hb) concentration <130 g/L in men, and <120 g/L in women. [5]

Anaemia in elderly is multifactorial in the aetiology and complex interaction of many factors. Causes of anaemia in the elderly are divided into three broad groups: nutritional deficiency, anaemia of chronic disease (ACD) and unexplained anaemia (UA). Several causes may co-exist and may each contribute independently to the anaemia. [6]

Patients with anaemia have various symptoms like fatigability, malaise, headache, vertigo, syncope, tinnitus, or chest pain due to insufficient oxygen supply, palpitation or shortness of breath by a compensatory mechanism. In elderly, due to organ insufficiency, even haemoglobin levels of 9–10 g/dl may result in the manifestation of severe anaemic symptoms. [7]

#### PATIENTS AND METHODS:

##### STUDY POPULATION:

The current study is a hospital-based prospective observational study conducted in the department of General Medicine in Santhiram Medical College and general hospital during a period of 6 months i.e., July 2019 to November 2019. Institutional ethics committee has approved the study.

Elderly patients aged 60 years and above presenting to the medical outpatient department or admitted in the ward with anaemia are enrolled for the study. Informed consent form is taken from all the patients.

World Health Organization (WHO) criteria is taken for defining the

patient as anemic, i.e., haemoglobin values less than 12 g/dl in women and less than 13 g/dl in men. Patients who are not willing to consent for the study, who are not willing to undergo necessary investigations, who had received recent blood transfusions are excluded from the study.

##### DATA COLLECTION:

Thorough history is taken for symptom analysis, comorbidities, dietary habits, drugs and complete physical examination is done with the help of preformed prestructural proforma in patients. They will be subjected to necessary investigations like complete hemogram, peripheral smear, serum ferritin levels, vitamin b12 assay levels etc.

Severity of anaemia is graded as severe (Hb < 8.0 g/dL) and moderate (Hb: 8.0–10.9 g/dL) for both men and women and as mild (Hb: 11.0–12.9 g/dL for men and Hb: 11.0–11.9 g/dL for women). RBC indices and peripheral smear are used to determine the pattern of anaemia. Microcytic anaemia is defined as MCV below 80fl, normocytic as MCV between 80 and 100 fl. Normal values of MCHC are taken as 31–35%, and MCH as 27–32 pg.

Special investigations like Chest X ray, endoscopy, colonoscopy, CT, Bone marrow biopsy etc. are done according to suspected aetiology.

##### RESULTS:

A total of 60 patients are enrolled in the study during the study period of 6 months i.e., July 2019 to November 2019. 35 of them are males (58.3%) while 25 of them are females (41.7%). Age of patients range from 60–85 yrs. Most of the patients belong to 60–70 yrs age group (58.3%).

The most common complaint is easy fatigability, seen in 90% of patients followed by weakness in 70%, dizziness in 40%, shortness of breath in 35%, swelling of feet (13.3%), headache (10%), palpitation (10%). History of bleeding is given in 8% of patients.

Pallor is seen in 66.6% of patients, while glossitis is seen in 16.6%, angular cheilitis in 13.3%. Pedal oedema is seen in 13.3%. Koilonychia is seen in 8.33%.

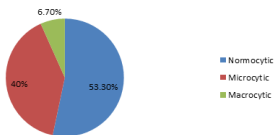
Majority of patients have mild anaemia (50%). 36.7% have moderate anaemia while 13.3% have severe anaemia.

**Table 1 : Severity of anaemia**

Severity of Anaemia	Frequency (n)	Percentage (%)
Mild	30	50
Moderate	22	36.7
Severe	8	13.3

Majority of patients have normocytic anaemia(53.3%), which is followed by microcytic anaemia (40%), and macrocytic anaemia (6.7%). 2 (3.33%) patients have pancytopenia.

**Chart 1:Percentage distribution of pattern of Anemia**

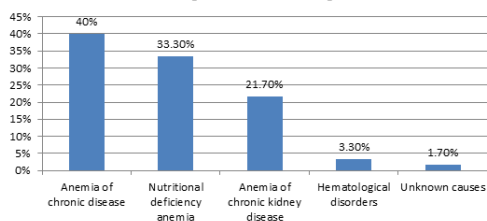


Most common etiological cause is Anaemia of chronic disease accounting for 40%, followed by Nutritional anaemia 33.3%, Anaemia of chronic kidney disease 21.7%, hematological disorders 3.3%. 1 patient has anaemia unexplained. Chronic diseases like liver disease, chronic infections like tuberculosis, chronic inflammatory diseases like inflammatory bowel disease accounted for majority of anaemia of chronic disease in the current study. Only one case of malignancy of colon is seen. Iron deficiency anaemia is mainly caused due to lack of proper intake and gastrointestinal diseases like gastritis, peptic ulcer. 1 case of myelodysplastic disease and 1 case of aplastic anaemia is encountered in this study.

**Table 2: Etiological Classification of anaemia**

Aetiology	Frequency	Percentage
Anaemia of Chronic disease	24	40%
• Liver disease	12	
• Chronic Infection	6	
• Chronic Inflammation	5	
• Malignancy	1	
Nutritional anaemia	20	33.3%
• Iron deficiency anaemia	16	
Malnutrition	8	
Peptic ulcer	6	
Chronic gastritis	2	
• B12/folate deficiency	4	
Anaemia of Chronic Kidney disease	13	21.7%
Hematological disorders	2	3.3%
• Myelodysplastic syndrome	1	
• Aplastic anaemia	1	
Unknown cause	1	1.7%

**Chart 2: Percentage Distribution of Etiologies of Anemia**



**DISCUSSION:**

Out of 60 elderly patients enrolled in the study, males outnumbered females. More than half of the study population is males. This distribution is in concordance with other studies like Guralnik JM et al. [8] and Chernetsky A et al. [9]. But few studies reported high incidence in females such as Ania BJ et al. [4], Nissenson AR et al. [10], and Soni P et al. [11]. This difference could be because of the difference in the study population selection.

A most common symptom in our study is easy fatigability followed by weakness which is in concordance with studies done by Sharma et al. [12], Bhasin A et al. [13].

In the current study, the majority of patients have mild anaemia (50%). 36.7% have moderate anaemia, while 13.3% have severe anaemia. Our

finding is in accordance with that of a study conducted by Mulugeta Melku et al. [14], wherein 6.4%, 36.7% and 56.9% had severe, moderate, and mild anaemia, respectively.

In the present study, majority of patients have normocytic anaemia (53.3%), which is followed by microcytic anaemia (40%), and macrocytic anaemia (6.7%). 2 (3.33%) patients have pancytopenia. This finding corroborates with the results of studies done by Elis et al. [15], Sharma et al. [12].

Most common aetiology in the study is Anaemia of chronic disease, followed by iron deficiency anaemia. This finding is similar to findings of the study done by Guralnik et al., [8], Tettamanti et al. [16], Petrosyan et al., [17].

Limitations of the current study are hospital based study, small size of study population, and short duration of study.

**CONCLUSIONS:**

In elderly patients, anaemia of chronic disease is common followed by nutritional anaemias which are treatable and can significantly improve the quality of life of the patients. Hence anaemia in elderly has to be diagnosed early and managed appropriately instead of treating it with hematinics.

**CONFLICTS OF INTEREST: Nil**

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