



EVALUATION OF GERIATRIC ANAEMIAS-A CLINICO HAEMATOLOGICAL STUDY IN TERTIARY CARE HOSPITAL

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ABSTRACT

AIM & Objectives: Clinico-haematological patterns and morphological types of anemia in elderly are manifold, hence, this study was undertaken to determine them.

METHODOLOGY: The present study was conducted on a sample size of 228 patients who were 60 years and above and clinically diagnosed as anemic. Routine hematological investigations including Peripheral blood smear examination and Complete hemogram were done. Special investigations like Bone-marrow examination, Iron studies, Stool and Urine examination were done whenever required.

RESULTS: Males were more affected than females and patients in the age group of 60-69 years were affected the most. The most common presenting symptom was generalized weakness. Normocytic normochromic anemia was the most common morphological type and chronic diseases were the commonest etiological factors.

INTERPRETATION AND CONCLUSION: Despite modern diagnostic advances, geriatric anemias still remain under-reported and inadequately investigated, necessitating evaluation of even mild anemias. Prompt diagnosis and definite categorization helps in appropriate management of anemias.

KEYWORDS : Normocytic Normochromic Anemia; Anemia due to chronic disorders; Microcytic Hypochromic Anemia; Anemia in the elderly; Iron deficiency Anemia

INTRODUCTION

Anemia in the elderly is an extremely common problem that is associated with increased morbidity and poor health related quality of life, regardless of the underlying cause of low hemoglobin.¹ It is easy to overlook anemia in the elderly since symptoms like fatigue, weakness or shortness of breath may be attributed to aging process itself and should never be accepted as an inevitable consequence of aging. Results from a number of studies have shown that anemia has a substantial negative impact on function as well as the quality of life. A progressive statistical increase in the number of elderly persons has been observed as a universal phenomenon which may be attributed to the overall increase in the life expectancy worldwide.² Anemia is defined as the condition in which the concentration of hemoglobin in the peripheral blood is below the normal levels for the age and gender of the individual.

WHO criteria for anemia is, Hb levels <12 gm/dl in women and <13 gm/dl in men.³

The prevalence of anemia has been found to range from 8 to 44% with the highest prevalence in men who are 85 years and older.⁴ The more common causes of anemia in the elderly are Chronic diseases and Iron deficiency. Vit B12, folate deficiency and Myelodysplastic syndrome are the other known causes of anemia in the elderly.⁵

METHODOLOGY:

The present study is a cross sectional, descriptive study conducted from November 2017 to May 2019 at Department of Pathology, Government Medical College and Hospital, Suryapet on 228 subjects in the age group of 60 years and above with anemia and also on those who presented with other complaints but were incidentally found to have anemia. The elderly people with hemoglobin values of less than 13 gm/dl in men and less than 12 gm/dl in women were included in the study.

A detailed history was elicited, a thorough clinical examination undertaken and data recorded in the proforma. The required quantity of venous blood was collected in EDTA tubes. The collected blood was analyzed using Sysmex, an automated cell counter having three part differentials. In this instrument, the blood cell counting is based on the impedance principle with both the cell counts and histograms obtained through the analysis of blood cell dilution. It employs three detector blocks and two kinds of reagents for blood analysis. The WBC count is measured by the WBC detector using DC detection method. The RBC and platelet count are measured by RBC detector blocks.

RESULTS:

The present study was carried out on 228 anemic elderly patients in the

age group of 60 years and above. These 228 patients were categorized into three groups according to their age and their anemic status.

Table 1: Age wise distribution of subjects:

Age group (years)	Number	Percentage
60-69	146	68
70-79	64	28.1
>80	18	7.9
Total	228	100

The above table and figure indicate that, maximum number of subjects (146) were in the age group of 60-69 years, 64 in the age group of 70-79 years and 18 were in the age group of 80 years and above. 126 (55%) subjects were males and 102 (45%) were females in the present study. 74 (32.5%) geriatric anemic patients were smokers, 68 (29.8%) of the elderly anemic patients had diabetes-mellitus, 90 (39.5%) of the geriatric anemic patients had hypertension, 38 (16.7%) geriatric anemic subjects had history of blood loss. 37 (15.8%) elderly anemic subjects were on NSAIDS.

Table-2: Relation with signs and symptoms.

Symptoms related to	Number	Percentage
Non-specific conditions	94	41.2
Nutritional disorders	76	33.4
Respiratory infections	24	10.5
GI Disorders	12	5.4
Carcinomas	10	4.4
Renal diseases	8	3.5
Liver diseases	4	1.6
Total	228	100

In this study, non-specific symptoms were most commonly associated with anemia, followed by symptoms and signs of nutritional deficiencies, cancers, renal diseases, respiratory infections, gastrointestinal diseases and liver diseases.

In the present study, we observed that, the most common morphological type of anemia was Normocytic normochromic (36.8%) followed by Microcytic hypochromic (21.1%), Dimorphic (18.4%), Normocytic hypochromic (17.6%) and Macrocytic which was the least common. Pancytopenia was seen in 4 patients among whom 3 were males and 1 was a female.

We observed in the present study that, anemia due to chronic disease (56.%) was the most common type followed by Iron deficiency anemia (29.8%), anemia due to other nutritional deficiencies (13.2%) and the

least common was anemia due to bleeding (9.8%).

DISCUSSION:

Majority of the anemias in the present study were normocytic, an observation similar to the study by Mauro Tettamenti et al⁶

One major factor that is often overlooked that may contribute to the production of anemia in the older population is the nutritional status, which is rarely seen in the affluent communities. In the low socio-economic group where other dietary deficiencies exist, anemia is of much more frequent occurrence. The principal reason for inadequate nutritional status in the elderly is poor dentition. Majority of the subjects in our study were of low socio-economic class and had poor dentition⁸. Iron deficiency anemia was found responsible for a staggering amount of ill health, increased morbidity and mortality in the elderly. Given the detrimental long term effects and high prevalence of iron deficiency in the elderly, its prevention is an important public health issue. Besides other anemia inducing causes, age-associated impairment of the ability of the marrow to increase the red cell production may be responsible for anemias making the elderly more susceptible to severe grades of anemia⁸. Chronic blood loss is found to be the main cause in these cases¹⁰.

Serum ferritin determination establishes or refutes a diagnosis of iron deficiency even without a bone marrow examination⁷.

The substantial percentage of Vit B12 deficiency anemias indicate that, it should be sought for in every case of anemia. Vit B12 deficiency has serious neuro-psychiatric consequences even in the setting of a moderate anemia. Given that it is easily amenable to treatment, early diagnosis and supplementation is generally recommended⁷.

The prevalence of anemia due to Folate deficiency was significantly lesser in the present study than that reported in the study of Riva et al¹¹.

The high prevalence rate of anemia due to chronic renal disease is significant, as advanced kidney diseases associated with anemia are known to have an impact on prolonged hospitalization and mortality⁹. It is believed that, inadequate renal production of erythropoietin might play a role. Kidney function usually declines with age. It has been demonstrated that, anemia is more prevalent when creatinine clearance and serum erythropoietin are low. A creatinine clearance below 60 ml/min has been found to be a risk factor for anemia.

NSAIDs and anti-platelet factors are well known risk factors for anemia⁸. In recent years, evidence points to metformin as a risk factor of Vit B12 deficiency probably due to malabsorption induced by metformin in the ileum. Detjager et al. suggested that Vit B12 levels should be monitored in patients on metformin therapy.

In the present study, there were several cases with concomitant pathology of iron and Vit B12 deficiency anemias. This reinforces the need to investigate for other causes of nutritional anemias, even after one form of deficiency has been detected⁹

Persons with Diabetes mellitus and Hypertension are at an increased risk of developing anemia. A number of mechanisms potentially contribute like, predominance of damage to cells and vascular architecture of renal tubulo- interstitium, systemic inflammation, autonomic neuropathy and the induction of inhibitors of erythropoietin release have been suggested as contributors to anemia in diabetic neuropathy^{12,13}.

In the present study, 68 subjects were diabetic and 90 hypertensive.

In the present study, more males were found to be anemic as compared to females. A similar genderwise distribution was noted in the study by Guralnik et al. and in the study by Gary et al.

In the present study, patients in the age group of 60-69 years were maximally affected which is in concurrence with the study by Mathew Roney et al. whereas, in a study by Pennix et al., patients in the age group of 80 years and above were maximally affected.

In the present study, chronic disease was the most common underlying cause of anemia, followed by anemia due to iron deficiency. This finding is in concurrence with the study by Riva et al. and with the study by Guyatt et al. in which, chronic disease was maximally responsible for anemia.

CONCLUSION:

Longitudinal studies would be helpful in detailing the mechanism of anemia and more importantly in looking into the possible effects of therapeutic interventions in geriatric anemic patients. Elicitation of complete socio-economic information becomes mandatory in order to identify the other associated risk factors in the geriatric population. Improved definitions of anemia and more detailed investigations like bone marrow aspiration and biopsy also help to define the subtypes of anemia, thereby facilitating prompt and accurate diagnosis to ensure appropriate patient management.

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