



STUDY OF CLINICAL AND HAEMATOLOGICAL PROFILE OF ANEMIA IN GERIATRIC PATIENTS AT A TERTIARY LEVEL CENTRE IN HARYANA

General Medicine

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ABSTRACT

Background: The demographic transition with ageing of population is a global phenomenon and in recent years there has been an increasing international awareness of health issues relating to aging population. Anemia represents an emerging global health problem producing a negative impact in the quality of life among the elderly and requiring greater allocation of health resources.

Aims: To identify elderly patients with anemia and study the etiology, clinical parameters, laboratory parameters in these patients.

Methods: A total of 100 patients were enrolled in this study. The entire medical history were obtained from each of the cases including previous medical reports and imaging studies. Complete blood counts, RBC indices, total WBC count, differential count, platelet count, haematocrit, ESR, peripheral smears, reticulocyte count, ferritin, iron and TIBC were recorded for each patient. The data was compiled and analyzed using Statistical Package for social services (SPSS vs 20).

Results: Among the etiologies, iron deficiency anemia was seen in 43% of patients, anemia of chronic disease in 32%, anemia of chronic kidney disease and unexplained anemia in 11 % patients. Among clinical features the commonest symptom was easy fatigability and commonest sign was pallor. Peripheral smear study showed that normocytic normochromic anemia was commonest type.

Conclusion: This study showed that the commonest cause for anemia among elderly patients is iron deficiency anemia followed by anemia due to chronic disease. Geriatric anemia is a disease that often goes unreported hence every effort should be made to identify the disease and evaluate the cause.

KEYWORDS

Geriatric anemia, Anemia in elderly, Iron deficiency, Iron parameters, Peripheral smear

INTRODUCTION

Anaemia is an indicator of both poor nutrition and poor health.¹ Anemia is the most common haematological dysfunction in the elderly and is a usually overlooked condition that is associated with poor health related quality of life, increased morbidity and mortality.²

Symptoms like fatigue, weakness, shortness of breath may be attributed to the ageing process itself; however, anemia should not be considered an inevitable consequence of ageing.³ Prevalence of anemia increases with advancing age⁴ and the presence of chronic infections(rheumatoid arthritis, cancer, infections)⁴. Chronic inflammatory states are associated with mild to moderate anemia, whereas lymphoproliferative disorders such as chronic lymphocytic leukemia and certain other B cell neoplasms may be associated with autoimmune haemolytic anemias. It has been found in some studies that, under the age of 75, anemia is more common in females; and above 75 years it is more common in males.⁵

Anemia in older adults has multiple etiologies with almost one-third cases attributed to nutritional deficiencies (Iron, Folate, Vit. B12),⁶ another one-third to chronic diseases(particularly renal diseases)^{4,7} and/or inflammation and the remaining third due to causes yet unexplained.⁴ The prevalence of anemia in elderly patients in India has been found to be as high as 70% in some studies.⁶

In geriatric age group, anemia is a common concern and public health problem. It is frequently underdiagnosed and often not reported to the patient because it is mostly perceived as a mere consequence of aging or as a disease marker⁷. However, anemia has been implicated with severe complications. It can greatly hamper the quality of life and, consequently, it can have an impact on healthcare requirements and expenditure. Thus, it is becoming a significant healthcare burden.

Evidences showed that anemia in elderly has been strongly linked with severe complications, including impaired physical functioning, decreased functionality, multidimensional loss of function, increased risk of frailty, depression, cognitive impairment, obstructive sleeping pane, frequent comorbidity and hospitalization, and increased risk of death. Despite old age being a major risk factor for anemia which threatens the quality of elderly life and has a substantial social and

economic effects, anemia, however, should not be accepted as an inevitable consequence of aging, as it does reflect poor health and increased vulnerability to adverse outcomes in older persons.⁹

Thus anemia represents an emerging global health problem producing a negative impact in the quality of life among the elderly and requiring greater allocation of health resources⁷.

MATERIALS AND METHODS

A Cross-sectional, observational study done over a period of one year was conducted at Department of medicine at SGT Medical College and Research Institute, Faculty of Medicine and Health Sciences, Gurugram. A total of 100 patients aged ≥ 60 years were enrolled in this study after screening for inclusion and exclusion criteria. Institutional ethics committee approval was taken for the same. A detailed history and physical examination was done in all patients. Haematological investigations were done in all patients which included complete blood count by Sysmex (6 part differential) including Hb, TLC, DLC, Platelet Count, RBC Indices: PCV, MCH, MCV, MCHC, Peripheral Blood Smear by Leishman Stain and reticulocyte Count by Methylene Blue Stain and examination under 100x, Serum iron profile (Serum Iron, Serum Ferritin, Total Iron Binding Capacity) by commercially available ELISA/CLIA Kits.

INCLUSION CRITERIA

1. Males above the age of 60 years with Hb < 13 g/dl.
2. Females above the age of 60 years with Hb < 12 g/dl.

EXCLUSION CRITERIA

1. Patients with already diagnosed bone marrow disorders such as Leukemia, Myelodysplastic Syndrome, Metastatic Malignancies, Aplastic Anemias.
2. Blood transfusion in the past three months.
3. Erythropoiesis stimulating agents in the past three months.
4. Patients already on treatment for anemia.
5. Patients on haemodialysis.
6. Patient receiving any haematinics.
7. Denial of consent, mental health or other problem that would render compliance with the study unlikely.

RESULTS

Of the 100 patients studied 87 patients (87%) were in the age group of 60 to 75 years, 11 patients (11%) in the age group of 76 - 85 years and 2 patients were in the age group of 86 - 95 years. Age group analysis revealed that 57 patients (57%) were men and 43 patients (43%) were women. Of the 87 patients in the age group of 60 - 75, 47 were men (54.02%) and 41 were women (47.12%). In the 11 patients in the age group of 76-85 years 8 patients (72.72%) were men and 18.18 % were women. In the age group of 86 - 95 years 100 % were men.

Among the causes for anemia, iron deficiency was the commonest constituting 43% of the cases followed by anemia of chronic diseases which constituted 32 % of the cases. Among the causes for anemia due to chronic inflammation 4 patients had both diabetes and hypertension, 2 had pulmonary tuberculosis, 2 had coronary heart disease, 1 was a case of thymoma, 2 were hematological malignancies, 2 cases were malignant melanomas, 4 were lung cancers, 3 breast cancers, 3 GI malignancies, 1 was a bone tumour, and 2 were unidentified malignancies. The next common cause for anemia was anemia of chronic kidney disease (11%) followed by anemia of unknown etiology (10%).

Based on the WHO criteria anemia can be classified into mild anemia with hemoglobin less than 10 gm/dl, moderate anemia with hemoglobin between 7 and 9.9 gm/dl and severe with hemoglobin less than 7 gm/dl¹³⁷.

Of the 100 cases studied 31 had mild anemia out of which 18 were men and 13 women, 39 had moderate anemia of which 21 were men and 18 were women and 30 had severe anemia of which 18 were men and 12 were women.

Of the 100 patients studied the commonest symptom associated with anemia was easy fatigability which was present in 75 patients, followed by GI bleed in 10 patients and palpitation in 9 patients. Of the clinical signs pallor was commonest and was present 92% of patients, peripheral edema in 20 patients, tachycardia in 15 patients, glossitis in 11 patients, koilonychia in 7 patients, hepatomegaly in 5 patients and splenomegaly in 6 patients.

The average levels of Hgb among the IDA, ACD, A-CKD and AUE was 7.7 gm/dl, 9.02gm/dl, 9.02 gm/dl and 8.9 gm/dl respectively. The average of MCV, MCH and MCHC in IDA was found to be 74.13fl, 24.47 hb/cell and 30.93 % whereas in Anemia of chronic disease it was seen to be 81.13 fl, 27.87 pg and 34.59 %. In A-CKD average MCV was 84.92 fl, MCH was 28.35pg and MCHC was 33.61 % and in AUE it was 80.01 fl, 25.16 pg and 31.49% In our study there was significant correlation between red cell indices and etiology specifically IDA.

DISCUSSION

With regard to the various clinical features of anemia in old age in this study the most common symptom was easy fatigability which was seen in 75% of patients followed by peripheral edema seen in 10 % and palpitations in 9 % of patients. These features corroborate closely with the results of the study by Amit Bhasin et al 2010¹⁰. The clinical signs seen in this study was pallor in 92 %, peripheral edema in 21%, glossitis in 11%, koilonychia in 7%, hepatomegaly in 5 % and splenomegaly in 6%. All the clinical signs were of higher incidence than that seen by Amit Bhasin et al 2010¹⁰ except peripheral edema which was similar in incidence.

Regarding the age, the age in the present study population ranged from 60 to 96 years with the mean age being 70.38. This mean age is similar to the studies conducted by Amit Bhasin et al 2010¹⁰, Chul Won Choi et al 2003¹¹, slightly lower than that seen in study by Tettamanti M et al 2010¹² and Saurabh R Srivastava et al 2013¹³. In the present study the maximum number of patients were in the age group between 60 and 75 years comprising 85 % of the study population and this is similar to the study by Sfurti Mann et al 2014¹⁴, Tettamanti M et al 2010¹⁴⁰. The number of men (57 %) with anemia is higher than that of women (43 %) with anemia in the present study (table 2) and this similar to the studies conducted by Kaur et al 2013¹⁴³ and Chul Won Choi et al 2003¹³⁹, and different from those by Tettamanti M et al 2010¹⁴⁰ and Saurabh R Srivastava et al 2013¹⁴¹, in which the percentage of women with anemia was found to be higher.

Regarding the various etiologies for anemia the commonest cause in the present study was iron deficiency anemia which differed from other

studies like NHANES III¹⁶, Sfurti Mann et al 2014¹⁴, Kaur et al 2013¹⁵, Tettamanti M et al 2010¹², Chul Won Choi et al 2003¹¹, which show anemia of chronic disease to be the commonest cause. The second most common cause for anemia in the present study was anemia of chronic disease followed by anemia due to chronic kidney disease and unexplained anemia.

CONCLUSION

This study showed that the commonest cause for anemia among elderly patients is iron deficiency anemia (43%) followed by anemia due to chronic disease (32%) and also that it can be asymptomatic which is incidentally detected when the patient is evaluated for other symptoms. Not many clinical signs are consistent with anemia except for pallor even which can be absent in cases of mild anemia. Anemia in the geriatric population often goes unreported, hence every effort should be made to identify the disease and evaluate the cause and it should not be ignored as merely being a part of ageing, for the consequences of anemia can have higher morbidity in the elderly.

Table 1: Age and sex distribution

Age	No. of pts	Men	% of men	Women	% of women
60-75	87	47	54.02	41	47.12
76-85	11	8	72.72	2	18.18
86-96	2	2	100	0	0

Table 2: Etiology of anemia

Diagnosis	No. of cases	Percentage(%)
Iron deficiency	43	43
Anemia of chronic disease	32	32
Chronic kidney disease	11	11
B ₁₂ or folate deficiency	1	1
Unexplained	11	11
Others	1	1

Table 3: Clinical features associated with anemia

Easy fatigability	75%
GI bleed	10%
Abdominal distention	20%
Chronic drug intake	42%
Falls	8%
Smoking	28%
Alcoholism	30%
Diabetes	35%
Hypertension	30%
Features of renal disease	10%
Thyroid symptoms	3%
Known malignancies	7%
palpitation	9%
Pallor	92%
Clubbing	15%
Icterus	4%
Pedal edema	21%
Koilonychia	7%
Glossitis	11%
Aphthous ulcer	7%
Lymphadenopathy	2%
Hepatomegaly	5%
Splenomegaly	6%
Tachycardia	15%

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