



STUDY OF ANAEMIA IN GERIATRIC POPULATION: A HOSPITAL BASED STUDY IN VARANASI REGION

Pathology

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ABSTRACT

Anaemia continues to be a major public health problem at all ages worldwide. The present study was conducted in the Department of Pathology and General Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi to assess the hematological profile and underlying etiology in elderly person presenting with anaemia in and around Varanasi, over a period of 3 years (2013-2016). In this study, a total of 178 patients of age 60 years and above attending geriatric medicine OPD and general indoor wards were evaluated for the types of anaemia. Anaemia of chronic disease was the commonest type of anaemia and it was followed by iron deficiency, myelodysplastic syndrome and aplastic anaemia. Despite the modern diagnostic advances, geriatric anaemia still remain unreported and inadequately investigated, especially when mild, thereby necessitating evaluation of mild anaemia in this vulnerable population.

KEYWORDS

INTRODUCTION:

Anaemia continues to be a major public health problem at all ages worldwide. In the adult population, anaemia is a risk factor for cardiovascular health and early death. In addition, it also causes fatigue and leads to negative impact on cognitive and physical functions as well as on the quality of life. (1) Recent population-based surveys have renewed the debate and have even referred to the high prevalence of anaemia among elderly people as a "public health crisis." India had 60 million elderly (above 60 years of age), which is about 6.7% of the total population. (2) The proportion of the aged population in India increased from about 20 million in 1951 to 60 million in 2001 and is projected to be 120 million by the year 2031. (3)

Results from a number of studies have shown that anaemia has a substantial negative impact on function as well as quality of life. A progressive statistical increase in number of elderly persons has been observed as a universal phenomenon which may be attributed to the overall increase in the life expectancy worldwide. Thus anaemia in the elderly patients is an emerging global health problem for the 21st Century which negatively impacts the quality of life in a significant proportion of population requiring allocation of health care resources. Aging process decreases the functions of some organs and systems. An age related decline in gastro-intestinal and bone marrow functional resources has been found among the elderly. (4)

The elderly have decreased physical activity, changed dietary patterns and lowered food supply due to associated socioeconomic factors in the developing countries. This group of population also has an increased frequency of inflammatory processes. These factors make the elderly more prone to developing anaemia and micronutrient deficiencies which affect erythropoiesis. In those elderly patients in whom the cause of anaemia can be defined, the causes are quite similar to those in younger patients, with chronic disease and iron deficiency resulting from long term blood loss being the major factors. (5) Despite the high prevalence of anaemia in the elderly and the increasing size of geriatric population, very few studies have been done in India on elderly patient. Therefore, present study was done in the Department of Pathology and General Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi with the objective to assess the hematological profile and underlying etiology in elderly person presenting with anaemia in and around Varanasi, over a period of 3 years (2013-2016).

MATERIALS AND METHODS:

Cases of geriatric anaemia were taken from Medicine department of Sir Sunderlal Hospital, Banaras Hindu University, Varanasi. The period of sampling was from May 2013 to May 2016. A total of 178

patients of age 60 years and above attending geriatric medicine OPD and general indoor wards were evaluated for the types of anaemia. Patient details regarding age, sex, past illness, previous history of chemotherapy or radiation, living environment and social status were all recorded in a preset proforma. Clinical data including presenting complaints and the detailed history of the same were collected. Hematological indices including complete blood count, peripheral blood smear in selected cases TIBC, serum iron LDH were carried out by using EDTA blood. Complete blood count was performed in the CCI lab of Sir Sunderlal Hospital BHU by the five part machine (BENESPHERE) and seven part (BECKMAN COULTER) Geriatric anaemia was diagnosed on the basis of peripheral blood smear and bone marrow cell morphology, which was evaluated on Leishman stained preparations. Data were entered into Microsoft excel and analyzed using Epi Info 7.1.3.0 statistical software. Data was expressed in terms of percentages, mean and SD.

RESULTS:

Most of the cases were in the age group of 60-65 years with both male (46.82%) and female (65%) sex followed by 65-70 years in both sexes (Figure 1). Hemoglobin concentration ranges from 1.8 gm/dl to 12.6 gm/dl with mean 7.63. MCV ranges from 62.6 -133.9 fl with mean 89.90. Range of RBC was 0.53-4.7/mm³ with mean 2.67. HCT ranges from 4.6-40.9 gm/dl with mean 23.87 (Table 1).

Anaemia of chronic disease formed the major cause of anaemia (55.61%) among geriatric patient followed by Iron deficiency anaemia (6.74%), Myelodysplastic syndrome (6.74%) and Aplastic anaemia (6.18%) (Table 2). Most of geriatric patients had severe degree of anaemia (55.61%) followed by moderate degree of anaemia.(34.26%) 9.5 % cases shows mild degree of anaemia (Table 3).

DISCUSSION:

Anaemia is a major problem in older adults and its prevalence increases with age. Anaemia in older adults is often overlooked because the onset of symptoms and signs is usually insidious, and many people adjust their activities as their bodies make physiologic adaptations for the condition. (6) A high prevalence of anaemia is observed in hospitalized or institutionalized older individuals. (7) In the present study, patients in the age group of 60-65 year were maximally affected which is in concurrence with the study by Mathew Rony *et al.*, and Tilak *et al.*, whereas in a study by Phennix *et al.*, patients in the age group >70 were maximally affected because it's a western country where life expectancy is more in comparison to India. (8, 9, 10)

In the present study male were found to be more anemic as compared to

female. A similar gender wise distribution was done by Guralnik *et al.*, Gary *et al* and Tilak *et al.* (11, 12, 9) In the present study mean hemoglobin concentration was 7.63 gm /dl which was similar to the study done by Sfurti Mann *et al.*, in which mean hemoglobin concentration was 7.33 gm/dl. (13)

Anaemia due to chronic disease was found to be the most common cause of anaemia in the elderly followed by iron deficiency anaemia. Similar results were found in the study done by Matthew Rong Jie Tay *et al.*, and Mauro tettamanti *et al.*, in which ACD was the commonest type of anaemia in elderly. (8, 14) Present study was more similar to the study done by Sfurti Mann *et al.*, in which anaemia of chronic disease was most common cause of anaemia followed by Iron deficiency anaemia and Myelodysplastic syndrome. Less common causes were Aplastic anaemia, Hemolytic anaemia, Myelofibrosis in both the studies. (13)

In the present study severe degree (55.63%) of anaemia was found to be more common in geriatric patients. This is because it is a tertiary care hospital, and therefore it gets many referral cases from secondary and primary care centre. Severe degree of anaemia was followed by moderate degree of anaemia which was present in 34.26% of cases. Similar results on severity of anaemia was found in the study done by Prakash KG *et al.*, in which severe degree of anaemia was more common followed by moderate degree of anaemia. (15) In the study done by Gangadharan *et al.*, moderate degree of anaemia was more common followed by severe degree of anaemia. (16) Mild anaemia constituted only 9.5% of total cases. This may be due to the fact that ours is a tertiary care centre and therefore receives referral from secondary and primary centres. Secondly there is a possibility that majority of the mild anaemia in the elderly are either not turning up to seek opinion or are being handled at the primary and secondary care centre. In the present study cases of mild anaemia were mainly suffering from serious underlying hematological malignancy. Most common was Multiple myeloma followed by Chronic lymphocytic leukemia. Most of the mild Geriatric anemic patients remain untreated because of mild symptoms, but they have serious underlying causes. Therefore mild anaemia is not a mild condition in the elderly as it may be a harbinger of a serious underlying disorder which can cause significant morbidity and even death.

CONCLUSION:

Despite the modern diagnostic advances, geriatric anaemia still remain unreported and inadequately investigated, especially when mild, thereby necessitating evaluation of mild anaemia in this vulnerable population. Depending on observation in the present study frequency and severity of anaemia is more in the age group of 60-65 years in both males and females. Cases of mild anaemia should be investigated properly, because most of the mild anaemia cases had an underlying haematological malignancy. Because of mild symptoms cases of mild anaemia are ignored.

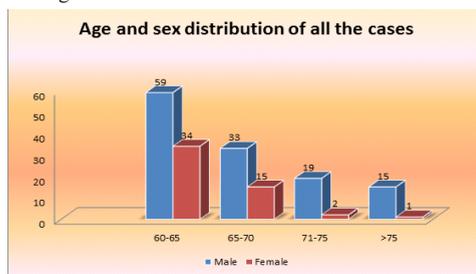


Figure -1 Age and sex distribution of the cases

Table-1 Hematological profile of the cases

S.N.	Characteristics	Range	Mean	SD
1	Hb (gm/dl)	1.8-12.6	7.63	2.49
2	MCV (fl)	62.6-133.9	89.90	12.18
3	MCH (pg)	14.1-43.8	28.69	4.56
4	MCHC (gm/dl)	22-44	31.37	3.30
5	RBC (/mm ³)	0.53-4.7	2.67	0.89
6	HCT (gm/dl)	4.6-40.9	23.87	6.76
7	RDW (/mm ³)	0.6-36.6	18.08	3.95
8	LDH (gm/dl)	77-2193	622.48	407.36
9	S.Iron	4.6-403.50	95.76	95.87
10	TIBC	35-658	259.53	110.84

Table-2 Etiological distribution of all the cases

DIAGNOSIS	Number	Percentage(%)
Anaemia of chronic diseases	87	48.87
Iron deficiency anaemia	12	6.74
Myelodysplastic syndrome	12	6.74
Aplastic anaemia	11	6.18
Megaloblastic anaemia	9	5.05
Dual deficiency anaemia	5	2.80
Diabetes mellitus	5	2.80
Chronic kidney disease	5	2.80
Hemolytic anaemia	3	1.69
Myelofibrosis	2	1.12
Haemophagocytic syndrome	2	1.12
Waldenstrom's macroglobinemia	2	
Pure red cell aplasia	1	0.56
Cd5+ Splenic Lymphoma with circulating villous lymphocytosis	1	0.56
Fatal Idiopathic pancytopenia	1	0.56
Unexplained	18	10.11
Total	178	100

Table-3 Grading of anaemia among the cases

Grading of anaemia	No. of cases	Percentage (%)
Mild	17	9.5
Moderate	61	34.26
Severe	99	55.61

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