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Original Research Article

Clinical and Aetiological Profile of Anaemia in Geriatric Patients: A hospital Based Study in Assam, India

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Abstract: Anaemia is an extremely common problem in geriatric age group and its prevalence increases with age. In various studies, the prevalence is reported as 10 to 44% of elderly population. The aetiology of anaemia in elderly is often multifactorial, with multiple factors contributing to the problem in an individual patient. It is most often overlooked since symptoms like easy fatiguability, weakness or shortness of breath may be attributed to the aging process itself. Untreated anemia has found to be associated with decreased function and increased mortality. Hence, anaemia in elderly should not be accepted as a consequence of aging. Under this backdrop, the present study was undertaken to know the clinical and aetiological profile of anemia in the elderly population. The present study was carried out in the department of Medicine, F.A.A. Medical College and hospital, Barpeta, Assam. F.A.A Medical College hospital is a tertiary care hospital, located in rural Assam. A total number of 100 geriatric patients with anaemia admitted in Medicine ward over a period of one year were included in this study. This was a retrospective study. We collected the bed head tickets and investigation reports (medical record files) of all geriatric patients from medical record department of the hospital. Next, all these medical record files were evaluated thoroughly and relevant data were collected. Collected data were analyzed and interpreted accordingly. The present study retrospectively analyzed data of 100 geriatric patients with anaemia in a tertiary care hospital of Assam, India. Out of 100 cases, majority 58 % patients belonged to 65 years to < 75 years of age. Male patients were 59 % and female were 41 %. Again, majority of patients (62%) had moderate anaemia (6-9gm %) followed by mild anaemia (21%) and remaining 17% had severe anaemia. Further, it was observed that 58% geriatric patients had normocytic anaemia followed by microcytic anaemia (38%) and only 4% of patients had macrocytic anaemia. The most common causes of anaemia were anaemia of chronic disease (29%), followed by iron deficiency anaemia (28%), GIT blood loss (7%) and chronic kidney diseases (6%). Haematological malignancy was seen in 4% and deficiency anaemia (B12 & folate deficiency) was responsible for 4% of anaemias in elderly. Hypothyroidism and aplastic anaemia were rare causes of anaemia. Unexplained anaemia was noted in 16% of elderly patients. The present study summarises the clinical profile, characteristics and the aetiological profile of anaemia in elderly. Anaemia in elderly is most often overlooked since nonspecific symptoms like easy fatiguability, weakness or shortness of breath may be attributed to the aging process itself. Untreated anemia has substantial negative impact on both function and quality of life. Hence, anaemia in elderly should not be accepted as a consequence of aging. We should evaluate and investigate thoroughly to find out the cause of anaemia and treat them accordingly as per the need. Thus, we could improve the quality of life and bring down the morbidity and mortality related with anaemia in elderly.
Keywords: Anaemia, Geriatric, Easy fatiguability, aetiology, Anaemia of chronic disease, Iron deficiency, unexplained anaemia, mortality.

INTRODUCTION

Anaemia is an extremely common problem in geriatric age group and its prevalence increases with age [1]. It increases the mortality and profoundly affects the quality of life in old age regardless of the underlying cause of anemia. Using World Health Organization criteria, haemoglobin of less than 12 gm per dl in female and less than 13 gm per dl in male for the prevalence of anaemia in the elderly has been found to range from 8 to 44 percent, with highest prevalence in man of 85 years and older [2]. It is estimated that more than 3 million people in the US aged 65 and older have anaemia. In various studies, the prevalence is reported as 10 to 44% of elderly population [2-5]. Generally, the prevalence of anaemia increases with each decade. Hence, it is a common growing health

problem in elderly. The aetiology of anaemia in elderly is often multifactorial, with multiple factors contributing to the problem in an individual patient. Dr. Artz stated that "in elderly persons the etiology of anaemia differs sufficiently from younger adults to warrant considering anaemia in elderly person as a distinct entity". Nutritional deficiencies account for approximately 34% of cases of anaemia in elderly, while anaemia of chronic disease with or without renal insufficiency accounted for an additional 33% and about 33% of geriatric patients with anaemia remain unexplained, and their pathogenesis remain speculative [6-8]. More than two third of anaemia in the elderly can be attributed to two major causes, nutritional deficiencies and anaemia of chronic diseases. Anaemia in the elderly is more commonly observed than appreciated. It is most often overlooked since symptoms like easy fatiguability, weakness or shortness of breath may be attributed to the aging process itself. Untreated geriatric anemia has found to be associated with increased prevalence of various comorbid conditions, decreased function and increased mortality [9]. In geriatric population, the potential negative impact of anaemia on performance status, physiology, and functional independence has appeared to be highest. Among those older than 65 years, anemia has been found to be associated with increased fatality, risk of developing dementia, diminished cognitive function, increased risk of recurrent falls, decreased mobility, lower bone density and skeletal muscle mass, and an increased major depression [10]. Anaemia in elderly has multifactorial etiology in a majority of patients and it has a substantial negative impact on both function and quality of life in the elderly. Hence, anaemia in elderly should not be accepted as a consequence of aging. We should evaluate and investigate thoroughly to find out the cause of anaemia and treat accordingly as per the need. Many studies were conducted in different countries, but very little data is available in our country especially in the state of Assam. Under this backdrop, the present study was undertaken with the following aims and objectives. 1) To know the clinical profile and characteristics of anaemia in elderly. 2) To know the aetiological profile of anemia in elderly population.

METHODS

The present study was carried out in the department of Medicine, F.A.A. Medical College and hospital, Barpeta, Assam. F.A.A Medical College hospital is a tertiary care hospital, located in rural Assam and mainly caters health care services in 6 to 7 districts in lower Assam. Most of the critical patients from these districts were referred to this hospital to get better treatment for having intensive care facility, Radio imaging, advanced haematological tests and other additional laboratory tests. A total number of 100 geriatric patients with anaemia admitted in Medicine ward over a period of one year from June 2015 to May 2016 were included in this study. This was a retrospective study. We collected the bed head tickets and investigation reports (medical record files) of all geriatric patients from medical record department of the hospital after taking permission from the concern hospital authority. At first, we checked the age of the patient and Hb % report on admission in the medical record file. Inclusion criteria of cases were patient aged 65 years and above, and presence of anaemia was defined according to WHO criteria : haemoglobin of less than 12 gm /dl in female and less than 13 gm / dl in male patients. This way, we selected a total of 100 geriatric patients with anaemia for this research work. Next, all these medical record files were evaluated thoroughly and relevant data were collected. The data in respect to age, sex, and reasons of hospitalization, common presenting clinical features, and clinical examination findings were recorded. We evaluated all available laboratory reports like complete blood count, reticulocyte count, PBS study, Iron profile, Hb electrophoresis, bone marrow studies (aspiration / biopsy), B12 and folate level (selected cases). We also evaluated the other additional tests which were available in the medical file, like liver function tests, renal profile, thyroid profile, , upper G.I. endoscopy, colonoscopy, stool for occult blood, parasite etc , chest X-ray, USG abdomen, CT scan , MRI. Etc. done to find out the underlying diseases. After detailed evaluation of all laboratory investigation reports, we recorded the data for grading of anaemia, morphological type of anaemia and the aetiological diagnosis of anaemia. Collected data were analyzed and interpreted accordingly.

RESULTS

Table 1: Showing age and sex distribution of the geriatric patients with anaemia under study (n=100)

Sl. No.	Parameter	Numbers of patients		Percentage
Age group	65 years < 75 years.	58	47 (male)	58 %
			11(female)	
	75 years < 85 years.	37	11 (male)	37 %
			26 female)	
	>85 years.	5	1 (male)	5 %
			4(female)	
Sex	Male	59		59 %
	Female	41		41 %

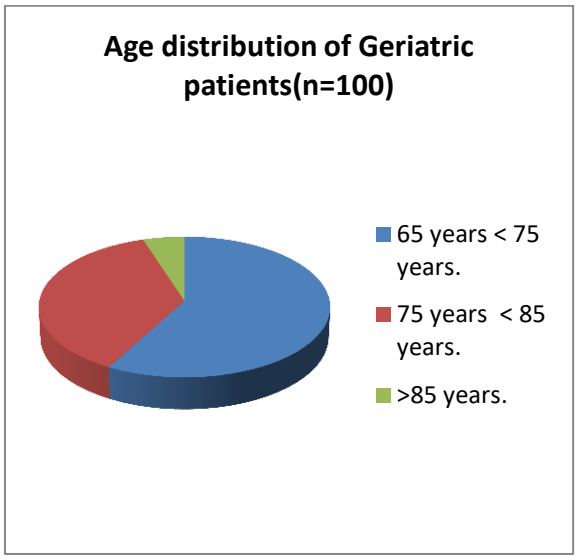

Fig-1: Age distribution of Geriatric patients

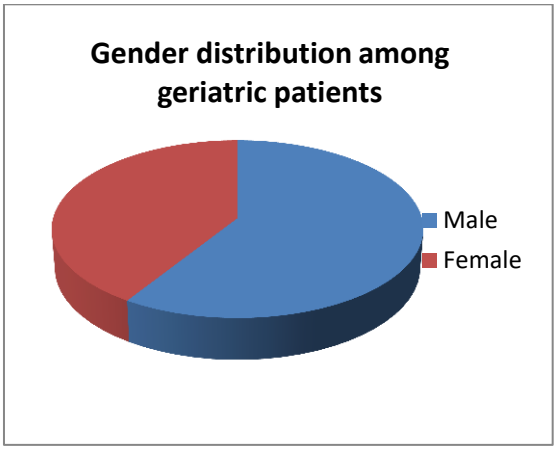

Fig-2: Gender distribution among geriatric patients

A total number of 100 geriatric patients were included in the present study. Out of 100 cases, majority 58 % patients belonged to 65 years to < 75 years of age. Male patients were 59 % and female were 41 %. Out of 59 male cases, 47 patients belonged to below 75 years of age. On the other hand, majority of female cases (30) out of 41 patients were in age group of 75 years and above.

Table 2: Depicting the reasons of hospitalization of geriatric patients at the time of admission.(n=100).

Sl. No.	Reasons	Number of patients	Percentage
1	Haematological diseases (Anaemia. Etc.)	19	19 %
2	Digestive tract disease (Peptic ulcer etc.)	18	18 %
3	CVS diseases (Hypertension, IHD etc)	21	21 %
4	Rheumatoid disease (Disturbance of gait etc.)	9	9 %
5	Endocrine diseases Diabetes mellitus etc.	22	22 %
6	Malignancy Etc	7	7 %
7	Others	4	4 %

In the present study, the most frequent main causes of hospitalization (at time of admission) in this geriatric age group was diabetes mellitus with complications (22%), Cardiovascular diseases, hypertention. IHD etc (21%), haematological diseases (19%) and digestive tract diseases (18%).

Table 3: Depicting common clinical manifestations of anaemia of the geriatric patients studied (n=100).

Sl. No.	Clinical feature	Number of patients	%
1	Easy fatiguability	91	91 %
2	Palpitation and anorexia.	48	48 %
3	Breathlessness on exertion	72	72 %
4	Giddiness	26	26 %
5	Difficulty on walking	56	56 %

In this study, the most common clinical presentation were easy fatiguability (91%), followed by breathlessness on exertion (72%) and difficulty on walking (56%). Palpitation and anorexia was seen in 48% of geriatric patients.

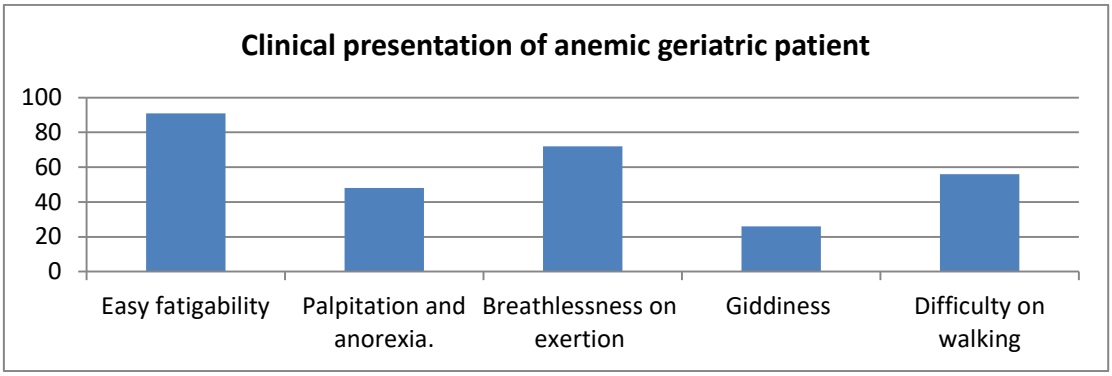

Fig-3: Clinical presentation of anemic geriatric patient

Table 4: Showing clinical examination findings of the geriatric patients with anaemia under study(n=100)

Clinical signs	Number of patients	%
Conjunctival pallor	79	79 %
Icterus	8	8 %
Glossitis ,loss of papillae	14	14 %
Lymphadenopathy	5	5 %
Engorged neck veins	2	2 %
Oedema	4	4 %
Hepatomegaly	6	6 %
Splenomegaly	7	7 %
Ascites	4	4 %

On clinical examination findings, conjunctival pallor was seen in 79% patients, glossitis (14%), icterus (8%), splenomegaly (7%) and hepatomegaly in 6% patients.

Table 5: Depicting grading of anemia of the geriatric patients with anaemia under study (n=100)

Sl. No.	Grading of anaemia	No. of cases	%
1	Mild > 9 gm%	21	21 %
2	Moderate 6—9 gm%	62	62 %
3	Severe < 6 gm %	17	17 %

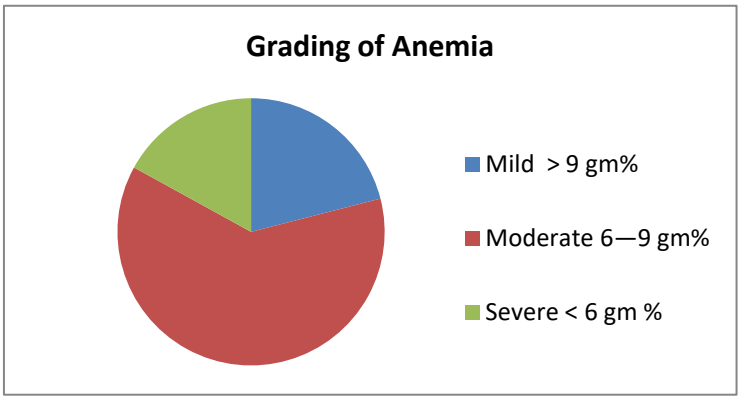

Fig-4: Grading of Anemia

In the present study, majority of patients (62%) had moderate anaemia (6-9gm %) followed by mild anaemia (21%) and remaining 17% had severe anaemia.

Table 6: Depicting morphological type of anemia of the geriatric patients under study (n=100)

Sl. No.	Morphological type	No. of cases	%
1	Normocytic	58	58 %
2	Microcytic	38	38 %
3	Macrocytic	4	4 %

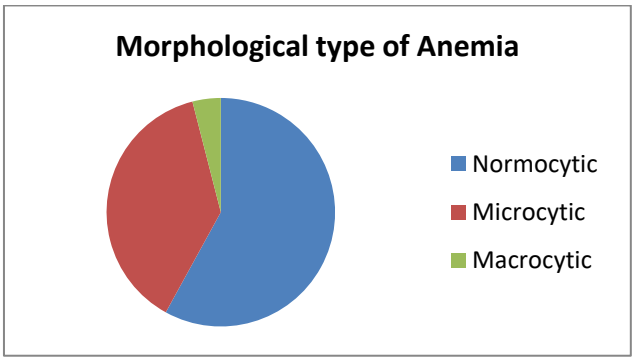

Fig-5: Morphological type of Anemia

On evaluation of haematological reports, it was observed that 58% geriatric patients had normocytic anaemia followed by 38% had microcytic anaemia and only 4% of patients had macrocytic anaemia.

Table 7: Depicting common causes of anemia of the geriatric patients under study (n=100)

Sl. No.	Common causes	Number of patients	%
1	Anaemia of chronic disease	29	29
2	Iron deficiency anaemia	28	28
3	G .I. T. blood loss	7	7
4	Haematological malignancy	4	4
5	Deficiency anaemia B12, folate deficiency	4	4
6	Aplastic anaemia	4	4
7	Chronic kidney diseases	6	6
8	Unexplained anaemia	16	16
9	Hypothyroidism	2	2

The present study showed that the most common cause of anaemia was anaemia of chronic disease (29%), followed by iron deficiency anaemia (28%), GIT blood loss (7%) and chronic kidney diseases (6%). Haematological malignancy was seen in 4% and deficiency anaemia (B12 and folate deficiency) was responsible for 4% of anaemias in the elderly. Hypothyroidism and aplastic anaemia were rare causes of anaemia. Even after extensive investigations, we could not find out the aetiology of anaemia in 16% of elderly patients labelled as unexplained anaemia.

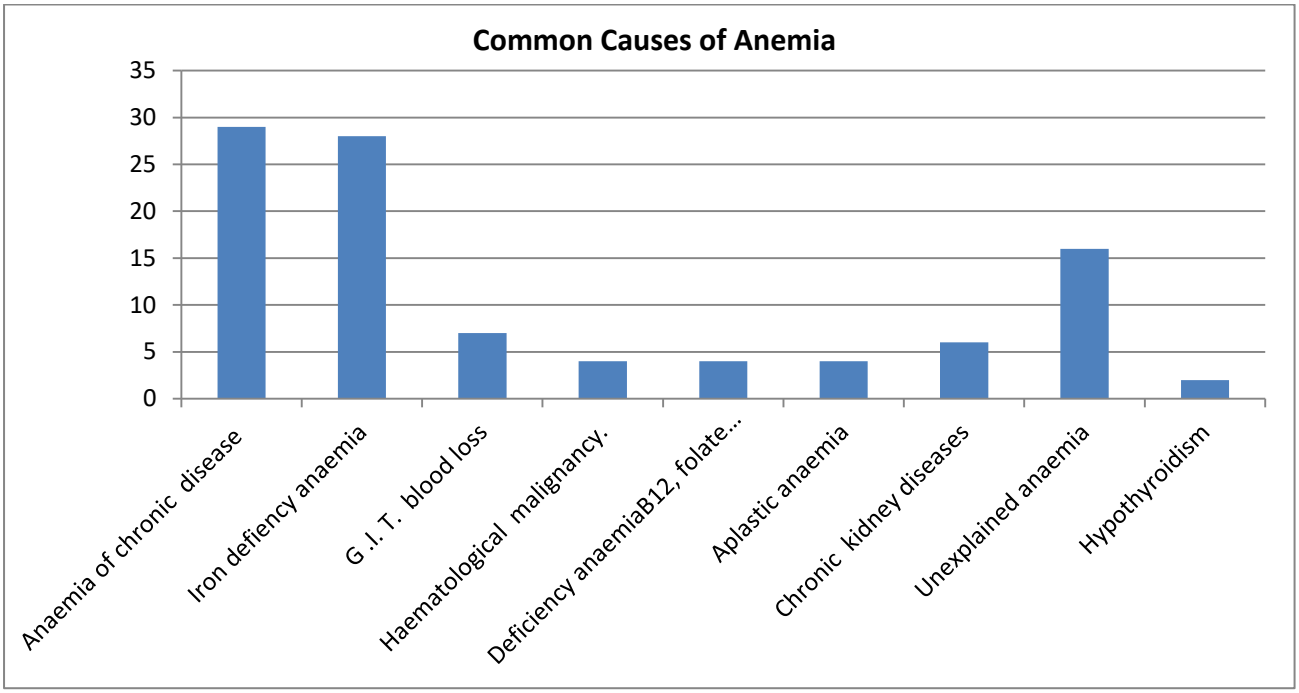

Fig-6: Common Causes of Anemia

DISCUSSION

The present study retrospectively analyzed data of 100 geriatric patients with anaemia in a tertiary care hospital of Assam, India. Out of 100 cases, majority 58 % patients belonged to 65 years to < 75 years of age. Male patients were 59 % and female were 41 %. Majority of male cases, (47) belonged to below 75years of age. On the other hand, majority of female cases (30) were in age group of 75 years and above. These findings were comparable to earlier studies [3, 4].

In this study, the most common clinical presentation was easy fatiguability (91%), followed by breathlessness on exertion (72%) and difficulty on walking (56%). Palpitation and anorexia was seen in 48% of geriatric patients. Similar observations were made by Prakash KG *et al.;* and Bhasin A *et al.;* in their studies in south India [3, 4]. In the present study, majority of patients (62%) had moderate anaemia (6-9gm %) followed by mild anaemia (21%) and remaining 17% had severe anaemia. Further, it was observed that 58% geriatric patients had normocytic anaemia followed by 38% had microcytic anaemia and only 4% of patients had macrocytic anaemia. Similar results were observed by various researchers in their studies , like Bhasin A *et al.;* in India, BJ Ania *et al.* and A Elis *et al.*[3,11,12].

The present study showed that the most common cause of anaemia were anaemia of chronic disease (29%), followed by iron deficiency anaemia (28%), GIT blood loss (7%) and chronic kidney diseases (6%). Haematological malignancy was seen in 4% and deficiency anaemia (B12 & folate deficiency) was responsible for 4% of anaemias in the elderly. Hypothyroidism and aplastic anaemia were rare causes of anaemia. Unexplained anaemia was noted in 16% of elderly patients. These observations were similar to many earlier studies [4, 13-15]. Ferrucci L *et al.;* reported anaemia of chronic diseases (33%), iron deficiency anaemia (22%) and B12& folate deficiency in 8% cases [13]. Another study done by Prakash KG *et al.;* observed anaemia of chronic disease in 26% cases, iron deficiency anaemia 24% cases and B12 & folate deficiency in 9 % cases [4]. In this study, we found 2 cases of chronic lymphoid leukemia, one acute myeloid leukemia and one multiple myeloma.

CONCLUSION

The present study summarises the clinical profile, characteristics and the aetiological profile of

anaemia in elderly. Majority (58%) of patients belonged to age group of 65 years to < 75 years of age. Most of the patients 62% had moderate degree (6 to 9 gm %) of anaemia. Normocytic anaemia was the most common morphological type with anaemia of chronic disease (29%) being major aetiology followed by microcytic anaemia with iron deficiency (28%). Other less common causes of anaemia were B12 & folate deficiency, hematological malignancy and hypothyroidism. Unexplained anaemia was seen in 16% cases in the present study. Anaemia in the elderly is more commonly observed than appreciated. It is most often overlooked since nonspecific symptoms like easy fatiguability, weakness or shortness of breath may be attributed to the aging process itself. Untreated anemia has found to be associated with mortality and it has a substantial negative impact on both function and quality of life in the elderly. Hence, anaemia in elderly should not be accepted as a consequence of aging. We should evaluate and investigate thoroughly to find out the cause of anaemia and treat them accordingly as per the need. Thus, we could improve the quality of life and bring down the morbidity and mortality related with anaemia in elderly.

Limitation: Sample size was small so result cannot be generalized to general population. Further studies with large sample size are needed.

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Conflict of interest: None declared.

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