

STUDY OF HEMATOLOGICAL PROFILE AMONG ELDERLY PATIENTS: A RESTROSPECTIVE STUDY

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Abstract

Introduction: Over the globe it is estimated that there will be around million more elderly people in coming 15 years which will accumulate to 1.2 billion by 2025 from 765 million older people in 2010(from 8% nearly in 2010 to about 12% by 2025). India has 104 million people over 60 years of age contributing to 8.6% of the total population of country. Anemia is a global health problem in older population associated with significant morbidity and mortality. Thus, it is of prime importance to look for the caused and clinical manifestations of anemia in geriatric population.

Material and Methods: 60 case files were selected for this retrospective study where the cases aged more than 60 years of age with anemia. Female patients with Hb less than 12 mg/dL and males with Hb less than 13 mg/dL were considered for the present study. Hematological and clinical profile was studied and analyzed from selected cases.

Results: In present study 23(38.3%) cases had iron deficiency anemia which was most common type of anemia followed by 16(26.7%) cases who had Vit. B/folate deficiency anemia. 8(13.3%) cases accounted for anemia of chronic disease followed by 7(11.7%) patients with anemia related to hematologic malignancy. Chronic Kidney disease is another cause of anemia which accounted for 5(8.3%) of cases in this study while similar number of patients had an unknown cause of anemia. Hypothyroidism counted for 4(6.7%) of cases of anemic patients.

Conclusion: Failure to evaluate anemia in elderly lead to delayed diagnosis of potentially treatable conditions. Nonspecific symptoms like fatigue and weakness should not be ignored, presuming that they are part of "normal ageing". An effort should always be made to reach etiological diagnosis before instituting specific therapy.

Keywords: Hb, Hypothyroidism, anemia, Chronic Kidney disease, Vit. B

Introduction

There has been a sharp increase in geriatric population in recent years. The geriatric age group is referred to those people who are above 60 years of age according to United Nations. Over the globe it is estimated that there will be around million more elderly people in coming 15 years which will accumulate to 1.2 billion by 2025 from 765 million older people in 2010(from 8% nearly in 2010 to about 12% by 2025)¹. Statistics from 2011 census shows that India has 104 million people over 60 years of age contributing to 8.6% of the total population of country². Elderly people are more prone to anemia and it is common in geriatric population. Also, the prevalence of anemia increases with age. Moreover the etiology of anemia among younger adults and elderly persons is sufficiently different which demands consideration of anemia in older people as a definite entity. There is an increased risk associated with anemia for hospitalization and death in older adult population³.

Anemia is a global health problem in older population aged 60 years or more due to its high prevalence and significant morbidity as well as mortality associated with it⁴. The prevalence of anemia in the geriatric population has been

reported to range from 8 to 44 percent according to criteria of World Health Organization where hemoglobin (Hb) less than 13 mg/dL in men and less than 12 mg/dL in women is defined as anemia⁵. In elderly population anemia is noted to be associated with dementia, depression, reduced mobility and poor quality of life^{6,7,8}.

Thus, it is of prime importance to look for the caused and clinical manifestations of anemia in geriatric population.

Material and Methods:

60 case files were selected for this retrospective study where the cases aged more than 60 years of age with anemia. This study was conducted at Venkateshwara Institute of Medical Sciences, Gajraula, U.P. India. Female patients with Hb less than 12 mg/dL and males with Hb less than 13 mg/dL were considered for the present study. Hematological and clinical profile was studied and analyzed from selected cases.

Complete hemogram, thyroid function test, ESR, Iron profile, folic acids levels, Vit. B12, stool for occult blood, endoscopy, peripheral smear, bone marrow analysis and radiological investigations done were evaluated. Data was entered in Microsoft Excel and analyzed in SPSS version 15.

Results:**Table 1:** Gender wise distribution of cases

Sex	Number	%
Female	38	63.3%
Male	22	36.7%
Total	60	100.0%

Among all the 60 cases considered for present study, 22(36.7%) were males while 38(63.3%) were females.

Table 2: Age distribution of patients

Age group (in years)	Female	Male
61 - 65	10	5
66 - 70	13	10
71 - 75	9	4
76 - 80	4	2
More than 80	2	0
Total	38	21

Majority of cases belonged to 66 – 70 years of age group and only 2 patients aged more than 80 years both of which were female. The mean age of patients was observed to be 65.3 years. The mean age of female patients was 68.9 years while for males it was 66.2 years.

Table 3: Causes of anemia

Causes of anemia	Number	%
Unknown	5	8.3%
Hypothyroidism	4	6.7%
Malignancy	7	11.7%
CKD	5	8.3%
IDA	23	38.3%
Vit. B/folate deficiency	16	26.7%
AOCD	8	13.3%

It was noted that in present study 23(38.3%) cases had iron deficiency anemia which was most common type of anemia followed by 16(26.7%) cases who had Vit. B/folate deficiency anemia. 8(13.3%) cases accounted for anemia of chronic disease followed by 7(11.7%) patients with anemia related to hematologic malignancy. Chronic Kidney disease is another cause of anemia which accounted for 5(8.3%) of cases in this study while similar number of patients had an unknown cause of anemia. Hypothyroidism counted for 4(6.7%) of cases of anemic patients.

In anemia of chronic disease, 3 patients were suffering from tuberculosis while 2 patients suffered from HIV and 2 from rheumatic arthritis respectively. Upper GI endoscopy performed in patients with IDA with no obvious cause showed that chronic upper GI blood loss, including occult blood from chronic gastritis, peptic ulcer disease, esophagitis, and carcinoma esophagus comprise of majority of cases of IDA cases. Insufficient dietary intake is still a common cause of iron deficiency in developing countries like India, and was seen in 19.2% of our IDA cases. Among those who had iron deficiency anemia, the common cause was gastrointestinal blood loss which was present in 16 patients. Among those 16, 10 had upper GI

cause for blood loss while 6 had lower GI cause for blood loss. Among the 16 cases having vit.B/folate deficiency, 8 had vit. B12 deficiency, 5 had folate deficiency whereas 3 has both vit. B12 as well as folate deficiency.

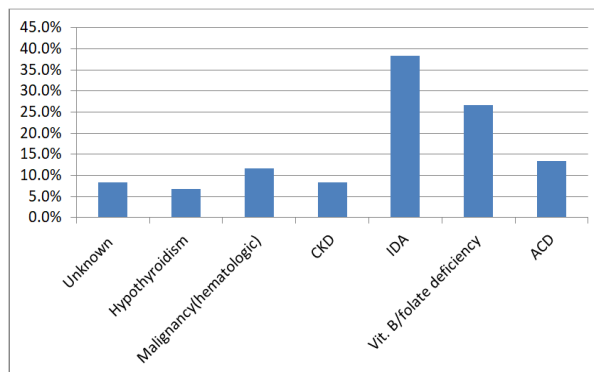
**Figure 1:** Graphical representation of causes of anemia.

Figure above depicts that iron deficiency was most common cause of anemia followed by Vit.B/folate deficiency, anemia of chronic diseases and hematologic malignancy respectively.

Discussion:

The most common cause of anemia worldwide in elderly is anemia of chronic disease⁹. Iron deficiency is frequently seen in elderly, typically as a result of chronic blood loss through GIT. Vitamin B12 deficiency, folate deficiency, MDS are among other causes of anemia in elderly^{10,11}. Literature has revealed that ageing does not have effect on blood production which implies that anemia in elderly should not be presumed to be secondary to ageing. However, the decline of hemoglobin and concomitant increased anemia with age should not be presumed to be a result of “normal aging” or due to nutritional deficiency and blanket treatment with hematinics should be avoided. Detection of anemia in an older person should prompt appropriate clinical attention. Serum ferritin is the most effective way to detect iron deficiency anemia. MCV increases slightly with increasing age but usually not enough to produce significant macrocytosis. The two common disorders that produce macrocytosis are megaloblastic anemias due to either vitamin B12 or folate deficiency. In present study majority of cases were females. In this study the commonest type of anemia was iron deficiency anemia (38.3% patients). These findings are in agreement with studies done by Bhasin A et. al and Thyagaraja K, et al^{12,13}. Along with chronic blood loss, dietary iron deficiency should also be considered as the cause for anemia with respect to Indian scenario and dietary habits in India. In a study done by Elejalde Guerra et al, revealed that IDA is the most frequent, followed by hemorrhagic anemia and ACD¹⁴. The findings were not in agreement with studies done by Elis et al, and Ania et al,

which showed normocytic normochromic anemia as the commonest cause of anemia in elderly^{15,16}. In present study Vit. B12/folate deficiency was followed by IDA as second most common cause of anemia. Third commonest cause of anemia was anemia of chronic disease (12%). In a study done by Davenport J et al, AOCD is considered to be the commonest cause of anemia in the world¹⁷. Another study done in South India by Dr. Prakash KG et al, also had AOCD as commonest cause of anemia¹⁸. In this study 3 patients were suffering from tuberculosis while 2 patients suffered from HIV and 2 from rheumatic arthritis. HIV virus itself can produce bone marrow suppression. Many of HAART drugs are associated with bone marrow suppression. Although there is a paradoxical feedback in renal production of erythropoietin, since the levels of this hormone actually increase over time, it has also been reported that the erythroid marrow may become less sensitive to erythropoietin stimulation, a key factor contributing along with possible nutritional deficits and comorbidities to the development of anaemia in the elderly¹⁹. Even distinguishing anemia of chronic inflammation from anemia of chronic kidney disease is somewhat challenging considering the fact that increased inflammation is seen in older adults even without chronic kidney disease and there are coexisting morbidities in this age group²⁰. Our study hence highlights the fact that most of the anemic elderly have an underlying treatable cause for anemia. It is essential therefore that the treating physician is aware of the coexistence of anemia in elderly, although the presenting manifestation may be for a different reason. It becomes, therefore, all the more pertinent to look for severity and type of anemia, possible etiologies and appropriate correction. As normocytic anemia is the most common blood smear diagnosis, it is important to bear in mind that normocytic blood picture in an anemic elderly should not be disregarded. Appropriate attention should also be paid towards diet and nutrition of the geriatric population. It is advisable to evaluate each anaemic patient carefully, irrespective of the screening costs, provided that the diagnostic tests chosen are appropriate, reasonable and justified. Given the association of anaemia with poorer quality of life, comprehensive geriatric assessment essentially should include clinical review for presence of anemia and associated signs to reflect the possible etiology.

Conclusion:

Given the rising numbers of older adults in India, family physicians require greater attention to evaluate and manage common treatable conditions such as anemia,

which may lead to increased morbidity and mortality in this particular population. Failure to evaluate anemia in elderly lead to delayed diagnosis of potentially treatable conditions. Nonspecific symptoms like fatigue and weakness should not be ignored, presuming that they are part of "normal ageing". An effort should always be made to reach etiological diagnosis before instituting specific therapy.

References:

1. World Health Organization; Definition of an older or elderly person. Available at: http://www.searo.who.int/entity/health_situation_trends/data/chi/elderly-population/en/.
2. World Health Organization; Population of elderly person. Available at: <http://www.searo.who.int/india/topics/ageing/en/>.
3. Endres HG, Wedding U, Pittrow D, Thiem U, Trampisch HJ, Diehm C. Prevalence of anemia in elderly patients in primary care: impact on 5-year mortality risk and differences between men and women. *Curr Med Res Opin.* 2009;25(5):1143-58.
4. Halawi R, Moukhadder H, Taher A. Anemia in the elderly: a consequence of aging? *Expert Rev Hematol.* 2017 Apr; 10(4):327-335.
5. Beghe C, Wilson A, Ershler WB. Prevalence and outcome of anemia in geriatrics: systematic review of the literature: *Am J Med.* 2004;116(suppl 7A):38-105.
6. Penninx BW, Guralnik JM, Onder G, Ferrucci L, Wallace RB, Pahor M. Anemia and decline in physical performance among older persons. *Am J Med.* 2003 Aug 1; 115(2):104-10.
7. Dharmarajan TS, Norkus EP. Mild anemia and the risk of falls in older adults from nursing homes and the community. *J Am Med Dir Assoc.* 2004 Nov-Dec; 5(6):395-400.
8. Atti AR, Palmer K, Volpato S, Zuliani G, Winblad B, Fratiglioni L. Anaemia increases the risk of dementia in cognitively intact elderly. *Neurobiol Aging.* 2006 Feb; 27(2):278-84.
9. Davenport J. Macrocytic anemia. *Am Fam Physician.* 1996 Jan; 53(1):155-62.
10. Varat MA, Adolph RJ, Fowler NO. Cardiovascular effects of anemia. *Am Heart J.* 1972 Mar; 83(3):415-26.
11. Mary Lynn R, Sutin D (2003) Blood disorders and their management in old age. In: *Geriatric medicine and gerontology.* Churchill Livingstone, Edinburgh, pp 1229–1230.
12. Bhasin A, Rao MY. Characteristics of anemia in elderly: a hospital based study in South India. *Indian J Hematol Blood Transfus.* 2011;27(1):26-32. doi:10.1007/s12288-011-0056-4
13. Thyagaraja K, Benny S, Bhat VS, Nair AG. Study of clinical and hematological profile of anemia in hospitalized geriatric patients. *Int J Adv Med* 2019;6:1212-5.
14. Elejalde Guerra JI, Alonso Martinez JL, Rubio Vela T, Garcia Labairu C, Llorente B, Echegaray M. Etiological study and diagnosis of anemia in adults over 60 years of age. *Sangre.* 1999;44(6):418-23.
15. Elis A, Ravid M, Manor Y, Bental T, Lishner M. A clinical approach to idiopathic normocytic-normochromic anemia. *J Am Geriatr Soc.* 1996;44(7):832-4.
16. Ania BJ, Suman VJ, Fairbanks VF. Incidence of anemia in older people: an epidemiologic study in a well-defined population. *J Am Geriatr Soc.* 1997;45(7):825-31.
17. Davenport J. Macrocytic anemia. *Am Fam Physician.* 1996;53(1):155-62.
18. Prakash KG, Devendrappa KR, Madhukumar MH, Priyashree R, Avinash BH. Clinical Profile of Anaemia in Elderly: A Cross Sectional Study from a Tertiary Care Centre. *Sch J App Med Sci.* 2015;3(3C):1266-70.
19. Keller CR, Odden MC, Fried LF, Newman AB, Angleman S, Green CA, Cummings SR, Harris TB, Shlipak MG. Kidney function and markers of inflammation in elderly persons without chronic kidney disease: the health, aging, and body composition study. *Kidney Int.* 2007 Feb; 71(3):239-44.
20. Milman N, Schultz-Larsen K. Iron stores in 70-year-old Danish men and women. Evaluation in 469 individuals by serum ferritin and hemoglobin. *Aging (Milano).* 1994 Apr; 6(2):97-103.