Original Research Article

Clinico-Pathological Profile of Anemia in Elderly: A Hospital Based Cross Sectional Study

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ABSTRACT

Background: Anemia in elderly is an extremely common problem and it can cause more severe complications than in the younger adults. It is often associated with mortality and poorer health-related quality of life, regardless of the underlined cause of the low hemoglobin.
Aim: To study the clinico-pathological profiles of anemia in elderly people.
Materials and Methods: A hospital based study of patients of geriatric age group who have attended geriatric clinic and clinical OPD from July 2012 to December 2012 were studied. Detailed laboratory studies of diagnostic tests were done.
Results: Out of 220 cases, 154 were found to be anemic amounting to 70 percentages. Proportion of anemia in males was 65.5% and in females it was 76%. All the patterns of anemia based on peripheral smear were evident. Normocytic anemia was the commonest pattern constituting 72%.
Conclusion: Diagnosing anemia and confirming its pattern is important since it help in directing further investigation reaching to the etiology and most importantly help in treatment.

Keywords: Anemia; Elderly; Proportion; Patterns.

INTRODUCTION

Anemia in elderly is an extremely common problem and it can cause more severe complications than in the younger adults. [1] It is often associated with mortality and poorer health-related quality of life, regardless of the underlined cause of the low hemoglobin. [2] Studies indicate that the prevalence of anemia increases with advancing age. [3] World Health Organization states that the prevalence of anemia in elderly is found to range from 8 to 44 percent, with the highest prevalence in men 85 years of age and older. [2] Few reported Indian cross sectional studies shows that the prevalence varies from 6% to 30% in male and 10% to 20% in female. [4]

Anemia should never be accepted as consequence of normal ageing process. [5] WHO criteria determine anemia to be present when the hemoglobin level is < 13g/dlin a man and < 12 g/dl in a woman. [2] Therefore, we have studied the proportion and the morphological patterns of anemia in elderly patients attending in a tertiary care hospital.

MATERIALS AND METHODS

After obtaining clearance from the local ethical committee, a hospital based cross sectional study of 220 patients was carried out on patients aged 60 years and above (either sex) presenting to geriatric clinic and clinical OPDs of Sri Venkateshwaraa Medical College and

Research Institute, Pondicherry, India from July 2012 to December 2012.

A detailed clinical history, complete general and physical examination along with detailed laboratory studies of hemoglobin and diagnostic tests were done to fix the patterns of anemia. Patterns of anemia were classified based on RBC indices and further correlated with the findings of peripheral smear reported by Pathologists. Normocytic anemia was defined when MCV was between 80 to 100 fl, microcytic anemia when MCV is below 80 fl and macrocytic anemia when MCV above 100 fl. Dimorphic anemia was diagnosed when RDW is more than normal range (11-15%). Patient having malignancy or any blood related severe disorder were not included in this study.

RESULTS

Present study included patients ageing from 60 to 85 years. Mean age was 64.2 years. Maximum numbers of patients were lying in 60 to 69 year age group. Out of 220 cases selected 154 were found to be anemic i.e. 70%. 122 were male and 98 were female of which patients of total. 80 out of 122 male patients were anemic which constitute 65.5% and 74 out of 98 female patients were anemic i.e. 76% as shown in Table 1.

The most common presentation was breathelessness64 (42%), followed by easy fatigability 44 (29%) and giddiness 17(11%). The rare presentations were bleeding per rectum Myalgia 4(3%), bleeding per rectum 6(4%) and Hematemesis 5(3.2%) (Figure 1).

The most common cause of anemia in our study was Anemia of Chronic Inflammation (28.6%), followed by iron deficiency anemia (26.7%) and vitamin B12 deficiency (16.9%), while anemia of unknown etiology and folate deficiency was responsible for 11.1% and 3.8% respectively. Aplastic anemia, hypothyroidism and upper GI bleed were rare causes of anemia constituting only 2.6 % (Table 2).

Pattern of anemia was established by RBC indices and confirmed by peripheral smear. Present study highlighted that normocytic was the commonest type of anemia among elderly constituting 72% of total anemic patient including both sexes. Microcytic hypochromic followed it with 14% than Dimorphic 6% and macrocytic anemia 5% (Table 3).

Table 1 : Distribution of study subjects according to their age and sex

Age group	males	females	Total
60-69 yrs	70	64	134
70-79 yrs	40	20	60
>80 yrs	12	14	26
Total	122	98	220

Table 2: Distribution of causes of Anemia in Elderly

Etiology	No of Patients	Percentage
Anemia of chronic inflammation	44	28.6
Iron deficiency anemia	41	26.7
B12 deficiency	26	16.9
Anemia of unknown etiology	17	11.1
Chronic kidney disease	8	5.1
Aplastic anemia	4	2.6
Folate deficiency	6	3.8
Hypothyroidism	4	2.6
Upper GI bleed	4	2.6
Total	154	100

Table 3: Distribution of the anemic subjects according to patterns of anemia

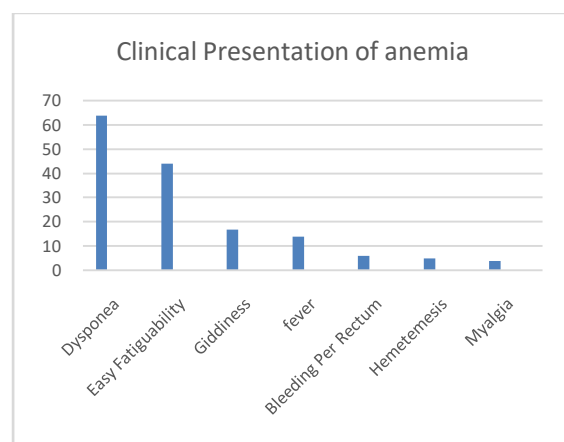| Patterns of anemia	Frequency	%
Normocytic normochromic	112	72
Microcytic hypochromic	21	14
Normocytic hypochromic	4	3
macrocytic	7	5
Dimorphic	10	6
	154	100

Figure 1: Distribution of Clinical presentation of Anemia

DISCUSSION

Anemia in older persons is extremely common and it was found to be often associated with different pathological causes. In our study, majority of patients

were male (65.5%), and most of them (52%) were in the age group of 60-69 years. This can be comparable with the studies of Amarneel et al and Prakash et al. [6,7]

Breathlessness was the most common symptom present in 64% of patients which was contrast to the study of Prakash et al where the common symptom was found to be Easy fatigability [7] Anemia of chronic Inflammation was the most common cause of anemia in the elderly patients n=44 (28%), followed by Iron Deficiency anemia n=41 (26.7%) and the third cause being vitamin deficiencies n= 26(16.9%). The less frequent causes were aplastic anemia n= 4 (2.6%) and hypothyroidism n=4 (2.6%). Even after extensive investigations, the Cause of anemia could not be established in 17(11.1%) of patients, where it was assigned as Anemia of Unknown Etiology (AUE).

Similar results were observed in a study done by Ferrucci *et al.* [8] where anemia of chronic inflammation contributed to 33% of cases, iron deficiency in 22% of cases, B12 & folate deficiency in 8%, AUE in 23% of cases.

Of the total 154 patients, 112 (72%) had normocytic anemia, while 21(14%) had microcytic anemia and 10(6%) had macrocytic anemia with a p-value of 0.001, which was statistically significant and it was similar to the study conducted by Amit Bhasin *et al.* [1]

CONCLUSION

Non specific symptoms like fatigue and weakness and the decline of hemoglobin and concomitant anemia should not be ignored attributing it to normal aging process as it can be important signal to presence of anemia. Normocytic anemia was the most common morphological type with anemia of chronic inflammation. Microcytic anemia was the second common morphological type with iron deficiency secondary to chronic gastrointestinal tract bleeding as major etiology followed by Vitamin B12 deficiency anemia. So, Diagnosing anemia and confirming its pattern is important since it help in directing further investigation reaching to the etiology and most importantly help in treatment.

REFERENCES

1. Bhasin A, Rao MY. Characteristics of Anemia in Elderly: A hospital based study in South India. Indian Journal of Haematology and Blood Transfusion 2011; 27(1): 26-32.
2. World Health Organization. Definition of an older or elderly person. Retrieved August 29, 2010. http://www.who.int/healthinfo/ survey/ageingdefnolder/en/index.html.
3. Ferrucci L, Semba RD, Guralnik JM, et al. Proinflammatory state, hepcidin and anemia in older persons. Blood. 2010;115:3810-3826.
4. HeldaKhusun, Ray Yip, Werner Schultink and Drupadi HS Dillon. World Health Organization Hemoglobin Cut-Off Points for the Detection of Anemia. Journal of Nutrition 1999; 129:1669-74.
5. Hee-Seon Kim and Byung-Kook Lee. Cross-sectional study on the prevalence of anemia among rural elderly in Asan. *Nutr Res Pract* 2008 Spring; 2(1):8-12.
6. Amarneel S and Sheth N. Pattern of Anemia in elderly Age Group. International Journal of Scientific Research and Reviews. 2015, 4(2):51-56.
7. Prakash KG, Devendrappa. KR, Madhukumar. MH, Priyashree R and Avinash BH. Sch. J. App. Med. Sci., 2015; 3(3C):1266-1270.
8. Ferrucci, L, Balducci L; Anemia of aging: the role of chronic inflammation and cancer. SeminHematol., 2008; 45(4): 242-249.

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