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Prevalence of morphological patterns of anemia in geriatric population

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Abstract

Background: Anemia in the geriatric population is a significant problem, considered as a normal consequence of aging, often ignored the symptoms which results in increase morbidity and mortality

Aim: To study the prevalence of anemia and various morphological patterns in geriatric population

Methodology: A hospital based observational prospective study was undertaken from October 2020 to September 2021, in hematology section of pathology at Katari Medical college and hospital, Katari Nagar Guntur. Both males and female, age group 60 years and above were included in the study. Detail hematological examination and peripheral smear study was carried out in each patient to know various morphological patterns of anemia.

Results: All morphological types of anemia are seen in elderly individuals with highest proportion of normocytic normochromic anemia.

Conclusion: Diagnosis of anemia and study of various morphological patterns, helps in directing towards the further investigations required to diagnosis the underlying etiology. It ultimately helps in the treatment.

Keywords: anemia, diabetes, hypertension, geriatric patients, normochromic, haemoglobin

Introduction

Anemia in the geriatric population is a significant health problem. It is considered as a normal consequence of aging, often ignored by physicians due to the common symptoms which negatively impacting quality of life in the geriatric population ^[1, 2].

The worldwide, number of elderly individuals is expected to reach nearly triple i.e 1800 millions in 2050 from 600 millions in 2000. In India the size of the elderly population, i.e. persons above the age of 60 years constitutes 7.4% of total population ^[3].

Studies states that the prevalence of anemia is increased with advanced age. Worldwide ranges between 8-44%. In India prevalence of anemia in elderly ranges between 6-30% among males and 10-20% among females ^[3-5].

Failure to evaluate anemia in the elderly may lead to delayed diagnosis of potentially treatable condition. Estimation of haemoglobin (Hb%) is the 1st and most common investigation to any patient who comes to the hospital. Morphological types of anemia is necessary to identify the underlying cause. Only a few studies have focused on evaluation of anemia based on morphological types. Thus the present study was planned to diagnosis of anemia and study the patterns of anemia in geriatric population in order to properly diagnose and management the cases.

Methodology

A hospital based observational prospective study was undertaken from October 2020 to September 2021, in hematology section of pathology at Katari Medical College and hospital, Katari Nagar, Guntur. Both males and females, age group 60 years and above were included in the study. The study was conducted after institutional ethical committee approval. Informed consent obtained from patients who are willing to participate in the study. According to the WHO criteria persons above 60 years are considered as elderly and hemoglobin level < 13 g/dl in males whereas <12 g/dl in females are considered as anemic ^[6, 7]. After blood sample aspiration done in Yumizen 550 hematology analyzer at haematology lab, peripheral smear was prepared to know the morphological types of anemia.

Compare RBC indices with peripheral smear examination, morphological types were classified as microcytic anemia when MCV <80 fl, Macrocytic anemia when MCV >100 fl and Normocytic when MCV between 80-100 fl. When MCV was normal RDW between 11%-15% dimorphic anemia was suspected and the same was confirmed with peripheral smear examination.

Results

In the present study geriatric age group above 60 years were taken. Present study age of patients ranged from 60-90 years. Maximum number of patients were males, they constitute 260/500 (52%), where as females constitute 240/500 (48%). The maximum number of cases are in the age group of 60-69 years i.e 260/500 (52%) which includes both male and female. (as shown in table:1)

Table 1: Demographic variable in anemic patients

Age group (years)	Total	Male	Female
60-69	60 (12%)	26 (43.3%)	34 (56.7%)
70-79	180(36%)	100 (55.5%)	80 (44.5%)
80-89	260 (52%)	134 (51.5%)	126 (48.5%)
Total	500 (100%)	260 (52%)	240 (48%)

Out of 623 cases 500 turnout to be anemic. All morphological types of anemia based on peripheral smear examination. Normocytic normochromic being the commonest among all morphological types of anemia which constitutes 30.2% (151/500) followed by normocytic hypochromic 22.8% (114/500), microcytic hypochromic anemia 23.4% 9 117/500), dimorphic anemia 12.4% (62/500), and macrocytic anemia 11.2% (56/500). (As shown in the table 2 and Fig: 1)

Table 2: Percentage of distribution of morphological anemia

Peripheral blood smear findings	Number (Percentage)	Male	Female
Normocytic Normochromic Anemia	151(30.2%)	83(55.0%)	68(45.0%)
Normocytic Hypochromic Anemia	114(22.8%)	72(63.1%)	42(36.9%)
Dimorphic Anemia	62(12.4%)	44(71.0%)	18(29.0%)
Microcytic Hypochromic Anemia	117(23.4%)	29(24.7%)	88(75.3%)
Macrocytic Anemia	56(11.2%)	32(57.1%)	24(42.9%)
Total	500 (100%)	260(52.0%)	240(48.0%)

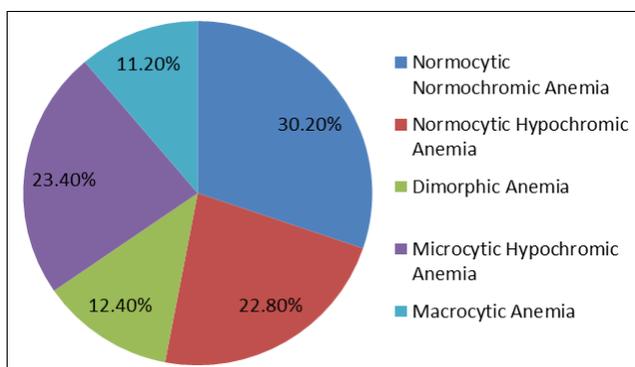


Fig 1: Percentage of distribution of morphological anemia

Discussion

Anemia is common problem among older individuals. According to WHO, anemia effect 1 in 7 or 8 of geriatric population [5]. Evaluation of the anemia in elderly population often overlooked due to the misconception as it is a normal consequence of aging process but anemia not necessarily as result of normal aging process [2, 3]. Anemia is most common problem associated with increased mortality and morbidity in elderly [8].

In the present study the prevalence of anemia in elderly was 52.8%. It is comparable with the prevalence reported by sahin *et al.* (54.9%) [9] and Tay and Ong (57.1%) [10]. However our results are discordance with results reported by Nakashima *et al.* (29%) [11] and Sgnaolin *et al.* (12.8%) [12]. The disparity might be due to the difference in population of area studied, where environmental and nutritional factors influence.

The prevalence of anemia is more common among 80 years and above age when compared to 70-79 years and 60-69 years. The present study showed 12% among the total geriatric population are the age group in between 60-69 years, whereas as age group between 70-79 and above 80 are 36% and 52%. The Present study showed a significant difference in the prevalence of anemia among older

individuals, anemia is more prevalent as age advances. Similar results noted by Ferrucci L *et al.* [4] According to WHO the prevalence of anemia among male above 85 years are high.

The present study found that, the prevalence of anemia in males were 52% (260/500) and in females were 48% (240/500). Present study showed the prevalence of anemia was higher in men when compared women. Similar results were reported by different scholars. The difference in the prevalence can be explained by the fact that there is decline in hormone levels i.e estrogen in postmenopausal women and testosterone in elderly men [13-18].

The most common morphological types of anemia in the present study found to be normocytic normochromic 151(30.2%), followed by normocytic hypochromic 114(22.8%), dimorphic anemia 62(12.4%), microcytic hypochromic 117(23.4%) and macrocytic anemia 56(11.2%). Present study showed normocytic normochromic anemia is commonest anemia among all morphological types and macrocytic anemia the least common type. Microcytic hypochromic was more common morphological type of anemias found in women in contrast to other anemia, which are common in men. Similar results were noted by Surabh R. Strivastava *et al.* normocytic normochromic anemia was the most common morphological anemia followed by microcytic hypochromic anemia [19].

Conclusion

Anemia is should not be ignored as normal aging process. It is important to know the various morphological type of anemia. So that we can estimate the extent of problem and identify the underlying cause to treat the condition early, thereby we can reduce mortality and morbidity due to anemia.

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