
ORIGINAL ARTICLE**Patterns of Anemia in Geriatric Age Group***Saurabh R Shrivastava^{1*}, Surekha B Hippargi¹, Anand P Ambali², Balasaheb R Yelikar³**¹Department of Pathology, ²Department of Medicine, ³Department of Pathology BLDE University, Shri B. M. Patil Medical College Hospital and RC, Bijapur-586101 (Karnataka), India***Abstract:**

Background: Anemia is a common concern in geriatric age group (more than 60 years of age) and can have significantly more severe complications than anemia in younger adults. WHO criteria determine anemia when the hemoglobin level is < 13g/dl in male and < 12 g/dl in female. *Aim:* To study the proportion and morphological patterns of anemia in geriatric patients. *Material and Methods:* A hospital based study of patients of geriatric age group who have attended geriatric clinic and clinical OPD from November 2010 to April 2012 were studied. Detailed laboratory studies of diagnostic tests were done. *Results:* Out of 654 cases, 448 were found to be anemic amounting to 68.5 percentages. Proportion of anemia in males was 67.6% and in females it was 69.8 %. All the patterns of anemia based on peripheral smear were evident. Normocytic anemia was the commonest pattern constituting 79.4%. *Conclusion:* Confirming the proportion and patterns of anemia is critical to direct the investigation for profiling the etiology since it is well known that the treatment of anemia goes a long way in improving the overall outcome and quality of life.

Key words: Anemia; Elderly; Proportion; Patterns.

Introduction:

Anemia is a common concern in geriatric age

group (more than 60 years of age). In this population, it can have significantly more severe complications than in the younger adults and can greatly hamper the quality of life [1]. Anemia in the elderly is an extremely common problem that is associated with mortality and poorer health-related quality of life, regardless of the underlined cause of the low hemoglobin [2]. However anemia should not be accepted as an inevitable consequence of ageing.

Studies indicate that the prevalence of anemia increases with advancing age and under age 75 years, anemia is more common in females, but over age 75 years it is more common in males [3]. Using World Health Organization criteria for anemia, the prevalence is found to range from 8 to 44 percent, with the highest prevalence in men 85 years of age and older [2]. As reported in the Indian cross-sectional studies prevalence varies between 6% and 30% among males and between 10% and 20% among females. Population based studies in Great Britain have reported prevalence ranging from 5% to 25%. Despite the high prevalence of anemia in the elderly and the increasing size of the geriatric population, only few studies have examined the effects of anemia on elderly patients [4].

It is easy to overlook anemia in the elderly, since symptoms such as fatigue, weakness, shortness of breath may be attributed to the ageing process itself but the decline of hemo-

globin and concomitant increased degree of anemia with age is not necessarily, a result of “normal ageing” [1,5]. So anemia should not be accepted as an inevitable consequence of ageing. WHO criteria determine anemia to be present when the hemoglobin level is < 13g/dl in 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.

Material and Methods:

The study was approved by the local ethical committee and all persons gave their informed consent prior to their inclusion in the study.

A hospital based observational study of 654 patients was carried out on patients aged 60 years and above (either sex) presenting to geriatric clinic and clinical OPDs of BLDE University, Shri. B. M. Patil Medical College and Hospital, Bijapur, Karnataka, India from November 2010 to April 2012. A detailed history, complete general, physical examination and systemic review of the patients were undertaken. Detailed laboratory studies of hemoglobin and diagnostic tests were done to fix the patterns of anemia. Patients fulfilling the WHO criteria of anemia (hemoglobin (Hb) <13 gm% in males, Hb <12gm% in females) [5]. Patterns of anemia were classified based on RBC indices and further correlated by peripheral smear. Microcytic anemia was defined as MCV below 80 fl, normocytic as MCV between 80 and 100 fl and macrocytic anemia by an MCV above 100 fl. Dimorphic anemia are suspected when RDW is more than its normal range (11-15%) and then correlated by peripheral smear.

The following hematological investigations

were carried out for all patients - Hb, Total Leucocyte Count (TLC), Differential Leucocyte Count (DLC), Erythrocytic Sedimentation Rate (ESR), Platelet Count, Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin Concentration (MCHC), Mean Corpuscular Hemoglobin (MCH), Packed Cell Volume (PCV), and peripheral smear for blood picture. Statistical analysis was done by using instant graph pad and mean.

Results:

In the present study age of patients ranged from 60 to 91 years. The mean age was found to be 73.06. Maximum number of patients were in 60-69 years of age range. Out of 654 cases, 448 (68.5%) patients were found to be anemic. Proportions of anemia in males was 67.6% and in females 69.8%. All the types of anemia based on peripheral smear were evident, normocytic being the commonest constituting 78.05%, followed by microcytic hypochromic 11.6%, macrocytic 6.02% and dimorphic 4.24 percentages.

Discussion:

Anemia in older persons is common and is often incorrectly attributed to the ravages of normal aging. Hemoglobin levels should not vary

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

Age Group	Male No (%)	Female No (%)	Total No. %
60 - 69 yrs	226 (58.7)	159 (41.3)	385 (58.9)
71 - 79 yrs	125 (62.2)	76 (37.8)	201 (30.7)
>80 yrs	41 (60.3)	27 (39.7)	68 (10.4)
Total	392	262	654 (100)

(Figures in parenthesis indicate row wise percentages)

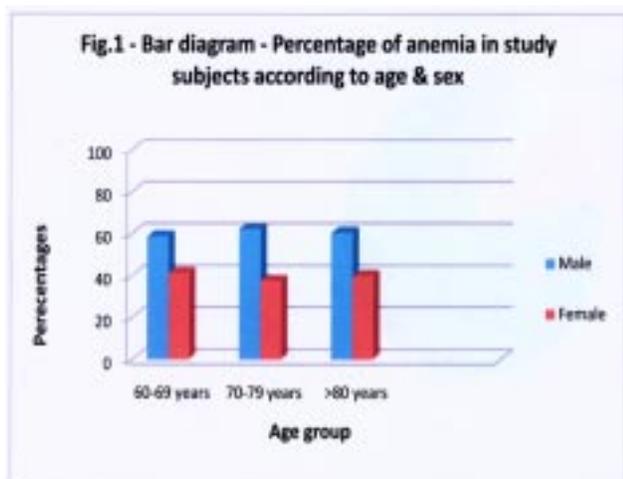
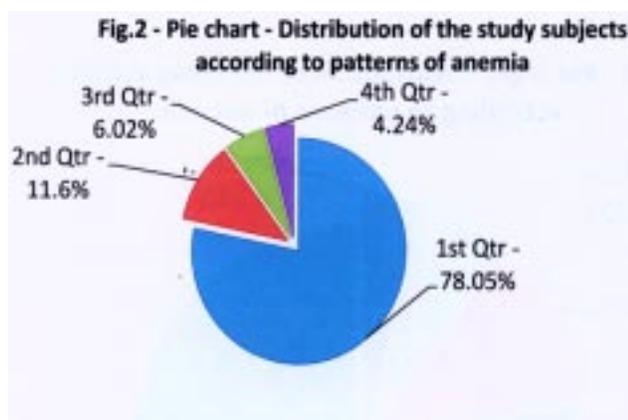


Table 2 - Distribution of the anemic subjects according to patterns of anemia

Patterns of anemia	Frequency	Percentage
Normocytic normochromic	313	69.8
Microcytic hypochromic	52	11.6
Normocytic hypochromic	37	8.25
Macrocytic	27	6.02
Dimorphic	19	4.24
Total	448	100



due to age alone in elderly patients who are free of disease with bone marrow that is not stressed. Whether anemia is a marker or mediator of disease is not always clear, but it is usually a signal of pathology and is associated with increased morbidity and mortality [7, 8]. Anemia of chronic disease is the most common form of anemia in the elderly which may be the cause for highest prevalence of normocytic anemia. Associated diseases found in present study were mainly chronic diseases, for e.g. renal diseases, liver diseases, infectious diseases, diabetes, hypertension etc. Although to identify the causes of anemia, detailed investigations have to be done.

Amit Bhasin et. al. study shows that most common pattern of anemia has been normocytic in 60-69 years age group [1]. The present study closely corroborates with this study. In the present study percentage of anemia has been lowest among age group of 60-69 years (66.7%) followed by 70-79 years (68.1%) age group and the highest among the age group of over 80 years (79.4%). Most common pattern in the present study has been normocytic anemia accounting for 78.1%. Hee-seon Kim et. al. study correlates closely with present study [5]. Chul won choi et. al. in their study of anemia in elderly have observed 171 out of 1254 patients to be anemic. Out of them 144 (11.4%) have been women and 27(2.1%) men. A significant difference in prevalence of anemia has been found among the age 60-69 years, 70-79 years and 80 and above years. The most common pattern of anemia in their study has been found to be normocytic anemia amounting to 93.5% and 3.5% of them being microcytic, and 3% were macrocytic anemias [6]. The present study

closely correlates with this study. In our study percentage of anemia in males (67.6%) has been less as compared to females (69.8%) in contrast to Guralink J.M et. al. whose study has showed that 11.0% of men and 10.2% of women of 60 years and above are anemic [7]. In the present study, percentage of anemia in male has been 67.6% and in females 69.8%. While NHANES-III study has revealed prevalence of anemia in 11% of men and 10.2% of women aged 65 years and older [8]. However our study has been a hospital based study as compared to his population based study.

Ania et. al. has diagnosed anemia in 36% of males, being normocytic in 83%, microcytic in 14% and macrocytic in 3%, as compared to 44% of women, which has been microcytic in 16%, normocytic in 80%, and macrocytic in 4% of cases [9]. In the present study percentage of anemia in males was 59.9%, being normocytic in 71.3%, microcytic in 16.8%, macrocytic in 10.6% and dimorphic in 1.3% compared to 40.1% of women which has been normocytic in 79.2%, microcytic in 14.9%, macrocytic in 4% and dimorphic in 1.9%.

Nissenson et. al. study has revealed that prevalence of anemia in general elderly population has been 7.5% for males and 20% for females [10]. Present study also shows prevalence of anemia more in females as compared to females.

Conclusion:

Confirming the patterns of anemia is critical to direct the investigation for profiling the etiology since it is well known that the treatment of anemia goes a long way in improving the overall outcome and quality of life. Failure to

evaluate anemia in elderly could lead to delayed diagnosis of potentially treatable conditions. Non specific symptoms like fatigue and weakness should not be ignored in the geriatric population as they could be important pointers towards presence of anemia in these patients. Hence, it is necessary to evaluate the anemia status in all elderly patients.

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