



MORPHOLOGICAL SPECTRUM OF ANEMIA IN GERIATRIC POPULATION AT JHALAWAR MEDICAL COLLEGE, JHALAWAR (RAJASTHAN)

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ABSTRACT

Background: Anemia is a global health problem in geriatric population because of the high prevalence and associated with significant morbidity and mortality. As per WHO recommendation, Hb level less than 12.0 g/dL for women and below 13.0 g/dL for men is consider as anemic. The study aims to analyse the various anemia patterns in geriatric population. **Methods:** A 2-year prospective study was conducted in the Department of Pathology, Jhalawar Medical College, Jhalawar. The study was comprised of all geriatric patients of age group 60 years and older of either sex in OPD and IPD in hospital. **Results:** Out of 404 anemic patients the proportion of males was 198(49%) and females 206(51%). On examination of peripheral blood smear, the most common morphological type of anemia observed was normocytic normochromic, accounting for 55.20%. **Conclusion:** Diagnosing anemia and analysing its patterns are essential steps in identifying the underlying causes of the condition. This understanding is crucial for determining the most effective treatment strategies, ultimately leading to improved management and outcomes for the patient.

KEYWORDS : Anemia, geriatric population, prospective study, peripheral blood smear.

INTRODUCTION:

Anemia is characterized by a reduction of RBC or hemoglobin (Hb), resulting in a lower ability for the blood in supplying oxygen to body tissues. This often leads to symptoms such as feeling fatigued, weak, dizzy, and short of breath. As per WHO recommendation, Hb level below 12.0 g/dL for Females and below 13.0 g/dL for males is consider as anemic^[1].

The required hemoglobin level to fulfil physiological needs differs based on age, gender, living altitude, smoking habits, and pregnancy.

Anemia is a worldwide public health problem. The majority of the global disease burden of anemia is shouldered by the developing world, with high prevalence in Africa and southeast Asia^[2].

In the geriatric population, anemia is a prevalent concern and a significant public health issue^[3]. It is often underdiagnosed and frequently goes unreported to patients, as it is commonly viewed as a trivial consequence of aging or simply a marker of disease.^[4].

METHODS:

A hospital base prospective study was conducted over two years at Jhalawar Medical College and its affiliated hospitals, targeting geriatric patients (60 years and above) in both OPD and IPD. The study included 404 participants who attended OPD and IPD. The study is approved from the institutional ethical committee and a informed consent was taken from all involved. The peripheral blood smears were used to examine anemia patterns, which were then classified based on RBC indices and correlated with peripheral blood smear results. Microcytic anemia was characterized by MCV (mean corpuscular volume) under 80 fL, normocytic anemia by an MCV between 80 and 100 fL, and dimorphic anemia was identified if RDW (red cell distribution width) exceeded the normal range of 11-15%, with further confirmation from peripheral smear analysis.

RESULT:

In this study, participants were geriatric patients aged 60 and above. The majority of patients were female, comprising 206/404 (51%), while males are 198/404 (49%). The highest number of cases was observed in the 66-70 age group, accounting for 108/404(26.73%), including both the genders. (as in table:1)

Table-1: Over all distribution of cases age wise

Age	Gender		Total
	Male	Female	
60-65	49 (46.23%)	57 (53.77%)	106 (26.24%)
66-70	51 (47.22%)	57 (52.78%)	108 (26.73%)
71-75	50 (47.17%)	56 (52.83%)	106 (26.24%)
76-80	31 (53.45%)	27 (46.55%)	58 (14.36%)
81 & above	17 (65.38%)	9 (34.62%)	26 (6.43%)
Total	198 (49%)	206 (51%)	404 (100%)

All morphological types of anemia were identified through peripheral smear examination. Normocytic normochromic anemia was the most common, representing 55.20% (223/404) of cases, followed by microcytic hypochromic anemia at 24.25% (98/404), normocytic hypochromic anemia at 11.88% (48/404), macrocytic anemia at 4.45% (18/404), dimorphic anemia at 3.22% (13/404), and hemolytic anemia at 1% (4/404).

Table-2: Morphological spectrum of anemia by PBF examination.

Morphological Spectrum	Male	Female	Total
Normocytic Normochromic Anemia	118	105	223 (55.20%)
Microcytic Hypochromic Anemia	39	59	98 (24.25%)
Normocytic Hypochromic Anemia	20	28	48 (11.88%)
Macrocytic Anemia	9	9	18 (4.45%)
Dimorphic anemia	9	4	13 (3.22%)
Hemolytic Anemia	3	1	4 (1%)
Total	198 (49%)	206 (51%)	404 (100%)

Overall, severe anemia was found in 71 cases (17.57%), moderate anemia in 226 cases (55.94%), and mild anemia in 107 cases (26.49%). (as table:3)

Table-3: Grading of Anemia in over all patients

Grading Of Anemia	No. Of Cases	Percentage
Severe (<7)	71	17.57%
Moderate (7-9.9)	226	55.94%
Mild (10-11)	107	26.49%
Total	404	100%

DISCUSSION:

Anemia is a global health issue in the geriatric population due to its high prevalence and its association with significant morbidity and mortality^[5]. Evidences showed that anemia in elderly has been strongly linked with severe complications, including impaired physical functioning, multidimensional loss of function^[6], depression^[7], comorbidity and hospitalization, and increased risk of death.

The present study revealed that the anemia prevalence was higher in females 51% (206/404) than males 49% (198/404). Similar results were reported by Soni PN et al.^[8] which also noted prevalence of anemia more in females. This differs from Mahathi Thotakura et al.^[9] revealed prevalence of anemia higher in males 52% and 48% in females.

According to the study, normocytic normochromic anemia was the most frequent morphological type, followed by microcytic hypochromic anemia. normocytic hypochromic anemia, macrocytic anemia, dimorphic anemia and hemolytic anemia. Similar outcomes were observed by Soni PN et al.^[8] and Mahathi Thotakura et al.^[9]. The most common morphological type of anemia in the study was normocytic normochromic anemia followed by microcytic hypochromic anemia.

Anemia in most cases was found to be moderate 55.94% followed by mild 26.49% and severe 17.57%. Similarly, the study by Qazi Imtiaz Rasool et al.^[10] also reports that moderate anemia was more common followed by mild and severe forms. Comparing with Singh R et al.^[11] where mild anemia is common than severe anemia followed by Moderate anemia.

CONCLUSION:

Diagnosing anemia in the geriatric population is crucial for understanding its patterns, which aids in determining the underlying causes. This approach allows for accurate assessment and identification of the root causes, enabling early treatment and potentially reducing anemia related mortality and morbidity.

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