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A HOSPITAL BASED CRITICAL STUDY OF PREVALENCE AND MORPHOLOGICAL PATTERNS OF ANEMIA IN ADULT AND GERIATRIC POPULATION

Pathology

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ABSTRACT

Anemia is as a base for many diseases. Elderly are susceptible to severe complication due to anemia compared to the younger ones. It is necessary to evaluate the anemic status in adult and elderly patients. According to WHO male <13g/dL and female <12g/dL should be termed as anemic. Anemia was found to affect 23.9% of the global population.

Anemia increases with age and it is more prevalent in females less than 75 years compared to males. However, data regarding patterns of anemia in Hyderabad is very less. The present research is aimed to study the prevalence and morphological patterns of anemia >45years in a Dr. VRK Women‟s Medical College & Research Centrefor a period of three months.

Observational study of patients >45 years who have attended clinical pathology lab in hospital for a period of 45 days was carried out. Patients having hemoglobin concentration below the normal value, i.e; <13g/dL for male and <12g/dL for female were selected. Complete blood count and peripheral smear were collected from these selected patients records.

Out of 1000 anemic patients, 425 were found to be above 45 years old. Most common pattern of anemia is normocytic normochromic anemia (69.9%) followed by microcytic hypochromic anemia (26.7%), then macrocytic anemia amounting to (1.3%) and (2.1%) were dimorphic anemia according to the present study.

KEYWORDS

WHO, normocytic normochromic anemia, microcytic hypochromic anemia, macrocytic anemia, dimorphic anemia, geriatric

INTRODUCTION

Those who are clinically asymptomatic and mostly in geriatric patients, national level heath burden has found to be anemia. The adults and elderly patients are more susceptible to severe complication due to anemia when compared to the younger ones according to literature.[1]

WHO defines that male <13g/dLand female <12g/dL should be termed as anemic.[2]Anemia is a sign which acts as an indicator for an underlying serious and various medical conditions. The most powerful prognostic and diagnostic marker is reduction in the level of hemoglobin for the various pathological outcomes.[3,4,5,6] If identified at early stages, anemia can be easily treated with drugs. An incidental finding after a laboratory evaluation is common. The various causes for anemia in adult population and its influences, justify the complete approach and evaluation of anemia associated with its treatable underlying pathogenesis. Nearly, 23.9% of the global population was anemic.[4,5]

In geriatric patients anemia is more commonly associated with cardiovascular complications and increased morbidity and mortality. In geriatric population, even a mild anemia can give rise to major health problems and its diagnosis is a challenge as well. Hence, the treatment is mainly based on the morphological patterns which help in diagnosis and understanding of underlying pathology even for an unexplained anemia.

The prevalence of anemia increases with age and is most common in females under 75 years of age as compared to males.[6] In India, the prevalence rate varies from 15.7% to 88.8% in different states.[4]It is high (63%) in North India[6]compared to South India (15.7%).[7]A study from Hyderabad suggested prevalence rate as 20.8%. Data for patterns of anemia in Hyderabad is very less. This common problem in the adult and geriatric population can be addressed by determining the patterns of anemia with its changes in the RBC parameters.[8, 9, 10, 11] Despite its high prevalence, very less database pertaining to anemia>45 years is available in South India.

STUDY OBJECTIVES:

1. For a period of three months, to study the prevalence of anemia >45years in a tertiary care hospital
2. For a period of three months to study the morphological patterns of anemia >45years in a Dr. VRK Women‟s Medical College & Research Centrefor a period of three months.

METHODS

From March to May 2017 at a Dr. VRK Women‟s Medical College & Research Centrein Hyderabad, observational study of patients >45 years who have attended clinical pathology lab for a period of three months was carried out. Selected parameters viz hemoglobin, complete blood count and peripheral smear were collected after identification. As defined by WHO, patients records of hemoglobin concentration below the normal value that is <13g/dLfor male and <12g/dLfor female were selected for the study.[2]

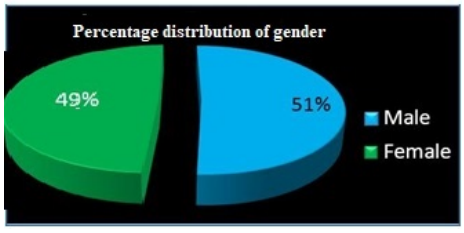
RESULTS

Including both outpatient and inpatient the total number of patients attended the clinical pathology lab were 10,282 in the current study. Out of 1000 anemic patients, 425 were found to be above 45 years old and the age was ranged from 45 to 75 and the mean age was 65. In that, 49% were females and 51% were males as shown in Fig.1.

Table 1: Gender Distribution of Anemia in Adult and Geriatric Population

SL. NUMBER	SEX	PERCENTAGE
1	FEMALE	49.0%
2	MALE	51.0%
	Total	**100.0%**

Fig. 1: Adult and Geriatric Population - Gender Distribution of Anaemia

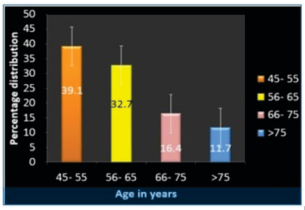


45 to 55 years age group was more prone to anemia (39.1%) as shown by Fig.2

Table 2: Adult and Geriatric Population- Percentage distribution of age

Sl. Number	Age	Percentage
1	45-55	39.1%
2	56-65	32.7%
3	66-75	16.4%
4	>75	11.7%
	Total	100%

Figure 2: Adult and Geriatric Population- Percentage distribution of age

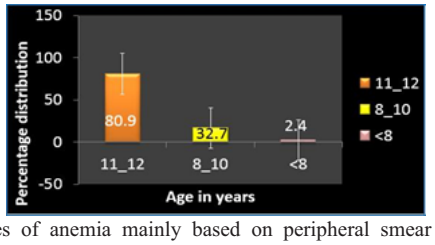


For mild anemic based on hemoglobin concentration it was found to be 80.9% as shown in Fig.3

Table 3: Adult and Geriatric Population – Percentage distribution of Hb

Sl. No.	Haemoglobin	Percent
1	11-12	80.9%
2	8-10	16.7%
3	<8	2.4%
	Total	**100.0%**

Figure 3: Adult and Geriatric Population – Percentage distribution of Hb

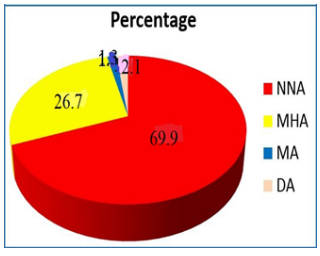


The types of anemia mainly based on peripheral smear and the common morphological patterns seen among the study group was normocytic normochromic anaemia (69.9%) followed by microcytic, hypochromic (26.7%), macrocytic anaemia (1.3%) and dimorphic (2.1%) as shown in Fig.4

Table 4: Morphological Patterns of Anemia in Adult and Geriatric Population - % distribution

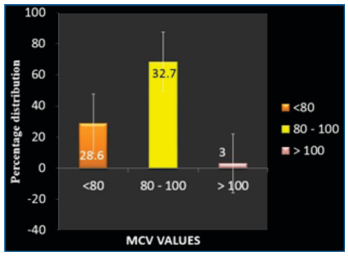
Sl. No.	Anemia Type	Percentage
1	Normocytic Normochromic Anaemia [NNA]	69.9%
2	Microcytic Hypochromic Anaemia [MHA]	26.7%
3	Macrocytic Anaemia [MA]	1.3%
4	Dimorphic Anaemia [DA]	2.1%
	Total	**100.0%**

Figure 4: Morphological Patterns of Anemia in Adult and Geriatric Population - % distribution



Normal MCV values were found in 68.4% of the patients as depicted in Fig.5.

Figure 5: MCV Values in Adult and Geriatric Population



The percentage of anaemia is lowest among the age group of above 75 years followed by 65-75 years and highest among 45-55 years as shown in Fig.2 in the present study.

DISCUSSION

This study suggests that mild anemia is common among adult and geriatric group (80.9% have haemoglobin concentration of about 9-10g/dL). In the cuurent study, most common pattern of anemia is normocytic normochromic anaemia (69.9%) followed by microcytic hypochromic anaemia (26.7%), then macrocytic anaemia amounting to (1.3%) and (2.1%) were dimorphic anaemia. 68.4% have normal MCV value (80-100%).

Anaemia is a very common problem and associated with several complications in adult and geriatric patients. High prevalence of anemia is seen in the age group of 60-79 years and 80 and above. In the present study population, anemia were commonly seen in males(51%) than females(49%).

CONCLUSION

Anaemia is a base for many diseases. It is necessary to evaluate the anemic status in elderly patients. The morbidity and mortality rate in patients above 45 years can be reduced by treating anemia in the early stages. The morphological patterns of an anemic patient play a critical role in understanding the underlying pathology, treatment and outcome. For potentially treatable conditions, investigation of anemia is a milestone during diagnosis. Especially for microcytic-hypochromic anemia, modified iron substitutes are available in the market which was developed recently.

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