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THE STUDY OF MORPHOLOGICAL PATTERN OF GERIATRIC ANEMIA IN A TERTIARY INSTITUE - AN ORIGINAL RESEARCH

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ABSTRACT

'Anaemia' is almost an inevitable cause of ageing1. Anaemia may be associated with poorer outcomes in a variety of disorders2 with specific symptoms like fatigue, increased functional status, cognitive impairment and increased mortality rates.

KEYWORDS: *Anaemia, Hypochromic, Reticulocyte*

Article History

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INTRODUCTION

Anaemia means no blood where an = not and haem = blood in Greek literature. The count range of haemoglobin which is less than 13 g / dl in males and less than 12 g / dl in females is mentioned as anaemia as per World Health Organisation protocol[1,] Anaemia in older age groups is complicated by chronic conditions and medications for these chronic conditions including obesity, diabetes, osteoarthritis, hypertension and heart disease and significantly correlates with mortality[3]. Hence, adequate knowledge of anaemia with a special perspective towards morphologic patterns and its respective treatment modalities is of utmost importance in clinical practice as it may help us understand the prevalence along with etiology and thus prevent mortality and morbidity in the elderly.

MATERIALS AND METHODS

The below-mentioned cross-section study was implemented in our institution between 01/10/2020 – 31/03/2021. The inclusion criteria were patients aged around 60 years of either gender devoid of blood transfusion for the past three months. The above-mentioned study protocol as per WHO was followed in terms of anaemia[4]. An analyzer of automatic configuration was used in the field of haematology for the collection and processing of 2ml blood with Ethylene diamine tetraacetic acid (EDTA) for anticoagulation. The various components of blood were measured such as completed blood picture, haemoglobin, haematocrit, red blood cells, white blood cells, platelets, red blood cell distribution width, mean

corpuscular volume, mean corpuscular haemoglobin and mean corpuscular haemoglobin concentration. Staining such as haematoxylin-eosin in the case of peripheral smear examination and supravital stain for reticulocyte count were performed.

RESULTS

Complete hemograms with reference to 273 elderly patients (60 years and above) were studied and only 66% of the population i.e.,180 patients had anaemia as defined by the WHO criteria for anaemia. 106(55.16%) for masculine gender and 74 (44.84%) for feminine gender. The mean average age was identified as 73.79 for males and 69.07 for females and masculine to feminine ratio was 1.23:1. (Table-1)

The highest percentage accounted for normocytic normochromic variety at 38.86% then followed by 16% dimorphic, thirdly by 16% microcytic and finally by 10.86% of macrocytic variety and 1% of chronic leukaemia. (Table no 2)

Table 1: Showing Sex Distribution

Gender	Total No of Patients	Anemic Patients	Average Age
MALE	150	106	73.79
FEMALE	123	74	69.07
TOTAL	273	180	

Table 2: Showing Peripheral Blood Smear Pattern

Pbs Findings	Number	Percentage
NORMOCHROMIC NORMOCYTIC	85	47.8
DIMORPHIC ANEMIA	39	21.2
MICROCYTIC HYPOCHROMIC	33	18.4
MACROCYTIC ANEMIA	21	11.6
INCIDENTAL FINDING(CLL)	2	1
TOTAL	180	100

DISCUSSIONS

Anaemia is one of the sensible tools for determining systemic physiological status. Risk factors in the causation of anaemia are decreased muscle mass, decreased cognitivity, reduction in vascular tone and decreased pulmonary function.[5,7]. In our study, anaemia was more prevalent in males with a predominance of normocytes followed by microcytes. A large proportion of cases of anaemia were witnessed in the male population as found in our study and were in parallel with that of studies by Kushtagi AV and Gangadharan V[5]. Observation of anaemia is common in males in the geriatric population whereas, in females, anaemia is more common in the younger age group. In elderly women, cessation of bleeding and a gradual decrease in post-menopausal oestrogen, an inhibitor of erythropoiesis decreases the risk of anaemia. Whereas, in males, a decline in free and bio-available testosterone, especially above the age group of 30 years, negatively impacts erythropoietic rates and predisposes men to anemia[4,8]. Our study had an average age of about 73.79 in males and 69.07 in females which were similar found in those studies by Kushtagi AV, Jain V and Soni PN et al in which age group were in the range between 60 to 70 years, 60 to 94 years and 60 to 87 years, respectively[5,9]. The majority of the anaemic individuals fell into the category of severe anaemia with haemoglobin less than 12 g/dL which was in accordance with the results of Koteswari M and Prakash KG et al in which haemoglobin levels were below 9 g/Dl[10]. Whereas, studies by Jain V and Gangadharan V et al demonstrated only mild cases of anemia[22,24]. The predominance of normocytes as evidenced by our study was in agreement with that of studies done by Jain V, Soni PN, Gangadharan V, Bisht N [9,11,12.] Narrowed haematopoetic bone marrow and its subsequent cellularity there may be a hierarchy of normocytes with an increase in

ageing, as seen in histopathology and radiology of magnetic resonance imaging leading to a minimal reduction in mean haemoglobin count in the geriatric population. Decreased volume of cancellous bone occurs due to reduction in bone marrow cellularity in the sternal region and anterior iliac crestal region due to risk factors such as incremental deposition of adipose tissue and osteoporosis. [13].

CONCLUSIONS

Low Haemoglobin levels form a significant risk factor for falls, fractures, cardiovascular diseases, insomnia, impaired mood and cognition, reduced physical performance, frequent prolonged hospitalization and decline in quality of life. Identification of haemoglobin levels for anaemia management, including blood transfusion, may confound with co-morbidities. Co-morbidities must be taken into account when assessing haemoglobin concentration[3]. Haematologists must continue to improve diagnosis, establishing standard protocols and practices[3]. Efficient and effective management of anaemia improves the quality of life[3,5].

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