PATTERNS OF ANAEMIA IN ELDERLY : A HOSPITAL BASED STUDY IN EASTERN U.P.

Pathology

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ABSTRACT

Background- Anaemia is a common problem in elderly population and can have significant morbidity and mortality .The objective of this study was to assess the clinical and laboratory profile in geriatric population with anaemia and to analyze its various causes.

Materials and methods- It was a hospital based prospective study of one year duration conducted at department of Pathology, HIMS, Varanasi.146 patients of age 60 years and above attending the OPD or inpatient wards were included. A thorough clinical evaluation followed by complete blood count, Peripheral blood smear, Bone marrow examination were undertaken. Other relevant tests were also carried out.

Results –The mean age of patients was 67 years.Maximum number of patients belonged to age group of 60-69 years. There was male preponderance with sex ratio of 1.4:1.Anaemia of chronic disease was the commonest cause of geriatric anaemia, most commonly due to chronic kidney disease.It was followed by iron deficiency anaemia in etiology.Most common type of anaemia in morphology was normocytic and normochromic type.

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

KEYWORDS

Geriatric anaemia, anaemia of chronic disease

Introduction

Never before, so many people lived so long. Now India is in a phase of demographic transition. It acquired the name of ageing nation with 7.7% of population being >60 years of age. This transition is attributed to decrease in fertility & mortality rate, due to availability of better health care facilities, increase in health awareness, living conditions, nutrition etc.[1]

Indeed, anaemia is an important public health challenge among elderly also, both in developed and developing world. However it should not be accepted as Anaemia in older individuals is associated with a wide range of complication, including increased risk of mortality, cardiovascular disease, cognitive dysfunction, reduced bone density and longer periods of hospitalization for elective procedures and co-morbid conditions[2].

The third National Health and Nutrition Examination survey conducted one of the most comprehensive study of geriatric anaemia in the total US population (1988-1994) which revealed the prevalence of anaemia as 11% in men and 10.2% in women aged 65 years and older. The prevalence of anaemia increased significantly with age, up to 26.1% in men and 20.1% in women aged 85 years and over. Approximately one-third of elderly patients were found to have nutritional anaemia, one-third of the population had anaemia of chronic disease, and the remaining one-third remained unexplained. Hospital based observational studies from India had shown the prevalence rate of anaemia varying from 37.8% to 71%[3]. Despite the high prevalence of anaemia in the elderly and the increasing size of the geriatric population, only a few studies had examined the aetiology and effects of anaemia on elderly patients. The present study was done to study the clinical profile and aetiology of anaemia in elderly more than 60 years of age at a tertiary care centre.[3]

It is a public health problem because 164 million elderly who constitute 23.9% of the elderly population are suffering from anaemia globally[1]. It is a crisis because it increases the risk of death by 40%. Geriatric anaemia therefore is a common and underappreciated problem that is associated with significant increase in the mortality and morbidity regardless the underlying cause of low hemoglobin. There has been only one published data on the status of geriatric anaemia in and around Varanasi. This hospital based prospective study was therefore undertaken to study the clinical and laboratory profile of elderly patients with anaemia and to analyze the various causes of geriatric Anaemia. This is vital for administering the most appropriate treatment, for developing a practical diagnostic algorithm relevant in our area and for developing better diagnostic and treatment facilities for geriatric anaemia in the hospital[4].

Materials and methods

A hospital based observational study of 146 patients was carried out on patients aged 60 years and above (either sex) presenting to clinical OPDs and indoor wards of Heritage institute of medical sciences, Varanasi, India from January2017 to January 2018. 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 anaemia. The study was approved by the local ethical committee and all persons gave their informed consent prior to their inclusion in the study.

Patients fulfilling the WHO criteria of anaemia (hemoglobin (Hb) <13 gm% in males, Hb <12gm% in females)[5]. Patterns of anaemia were classified based on RBC indices and further correlated by peripheral smear. Microcytic anaemia was defined as MCV below 80 fl, normocytic as MCV between 80 and 100 fl and macrocytic anaemia by an MCV above 100 fl**.** Dimorphic anaemia 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-

Out of 146 cases, most of the patients from both the sexes were in the age group of 60-69 years (88 cases,60.2%) followed by age group 70-79 years (43 cases,29.4%) and >80 years (15 cases,10.27%). The mean age of the patients was 67.8 years. There was overall male preponderance (M: F ratio 1.4: 1) for all disorders. Anaemia of chronic disease (ACD) was the commonest cause of geriatric anaemia (65 cases, 45%). ACD due to chronic kidney disease formed the largest group among the causes of ACD.ACD was then followed by iron deficiency anaemia comprising 27% of the cases. Table 1 shows the etiological distribution of the 146 cases.

Table1			
Diagnosis		Number	Percentage
Anaemia of chronic disease (65 cases,45%)	Chronic kidney disease	52	35.6
	Liver diseases	08	5.47
	Infections • Dengue • Ascariasis	02 01	1.36 0.68
	Rheumatoid arthritis	02	1.36
Iron deficiency anaemia		39	26.71
Diabetes mellitus		27	18.49
Megaloblastic anaemia		15	10.27
Total		146	100

The range of hemoglobin among all the cases was 3.0-11.3 g/dL, mean was 8.25g/dL.. Majority of patients presented with moderate anaemia (93cases, 63.6%). However 35.6% (52 cases) presented with severe anaemia and only 1 patient had mild anaemia(Table 2). Range of MCV among all the cases was from 56.2-129.9, mean was 89.09 fl.

Table 2			
Severity	Male	Female	Percentage
Mild anaemia	00	01	0.68
Moderate anaemia	54	39	54.26
Severe anaemia	36	16	46.95
Total	90	56	100

The commonest morphological type of anaemia in the study group was normocytic normochromic (81 cases, 55%), followed by Microcytic hypochromic anaemia (36 cases, 25%)and least cases were of macrocytic anaemia(29cases,20%) . Majority of the cases of anaemia of chronic disease (ACD) showed normocytic, normochromic blood picture (64 cases, 98%). All (15 cases) of megaloblastic anaemia showed macrocytosis and had macroovalocytes in the blood smear. Perl's stain for iron stores was done in 104 cases (out of a total of 146 cases). It was valuable in differentiating iron deficiency anaemia from anaemia of chronic disease.

Among the various etiological factors leading to IDA, chronic blood loss came out to be the commonest cause (18 cases). Drug induced gastritis (NSAIDs being the commonest) and worm infestation was the commonest cause of chronic blood loss. Most common general symptom in IDA patients was weakness and easy fatiguability observed in 39 cases (100%). Pallor was present in all 39 cases (100%). Second most common symptom was cardio respiratory among which breathlessness on exertion was the most commonly presenting symptom (21cases, 53%).

Among 15 cases of megaloblastic anaemia, the commonest symptom with which the patients presented was weakness and easy fatiguability constituting 12 out of 15 cases (80%). Pallor was present in 11 cases (73%). The most common neurological symptom was paraesthesia which was seen in all 15 cases (100%) followed by numbness.

Among the different causes leading to anaemia of chronic disease, anaemia of chronic kidney disease was found to be the commonest one (52 cases, 80%). The second common cause was liver diseases (8 cases, 12.3%) followed by Dengue(2cases,3.07%).

Table 3		
Morphological type of anaemia		
Type of anaemia	Cases	Percentage
Microcytic hypochromic anaemia	36	25
Macrocytic anaemia	29	20
Normocytic normochromic anaemia	81	55
Total	146	100

Discussion-

Majority of elderly in this study were in the age group of 60-69 yeras, followed by 70-79 years. The mean age was 67.8years.These are similar to the studies by Sudarshan B.P et al[1],Joshi et al[3],Bhasin et al[6],Vijai tilak et al[4] and Shrivastava et al[7].The mean age group in various international studies was 75.9-76.9 years[9,10,11,12].The cause of lower mean age could be due to lower life expectancy in India, especially in U.P.

In present study, there was male preponderance (59.6%males, 40.4%females), with sex ratio of 1.4:1.This is in accordance with the Third National Health and Nutrition Examination Survey[13] (NHANESIII) study ,in which incidence of anaemia in men and women older than 65 years was 11% and 10% respectively. These

findings are in accordance with the studies by Joshi et al[3],Bhasin et al[6],Vijai tilak et al[4],Shrivastava et al[7] and Prakash et al[8].

Thus the unique feature of anaemia is that in contrast to younger people,its more common among men than women[4].Cessation of blood loss in menstrual bleeding in elderly females could be the reason for this finding.

Anaemia of chronic disease was the most common type of anaemia(45%,65 cases),followed by iron deficiency anaemia (27%). This was comparable to studies by Joshi et al[3],Vijai tilak et al[4],Bhasin et al[6],Shrivastava et al[7],Mitrache et al[9],Tay et al[12].

Chronic kidney disease was the most common cause of Anaemia of chronic disease in our studywith80%cases.This was in accordance to the studies by Joshi et al[3], Bhasin et al[6],Vijai tilak et al[4].

Current study showed that majority of elderly patients had moderate anaemia, constituting 63.6%.This showed that hospital visits of elderly patients with mild anaemia was less in comparison to other forms. This was similar to study by Joshi et al[3].

Normocytic, normochromic anaemia was the commonest morphological type with 55%,81 cases. This was similar to studies by Joshi et al[3], Vijai tilak et al[4], Bhasin et al[6], Shrivastava et al[7], Hee Seon et al[5].

In our study Diabetes mellitus was also found as a cause of anaemia in 18%cases,similar to previous studies by Vijai Tilak et al[4],Bonakardon et al[14].

In our study,Iron deficiency anaemia was seen in 27% cases with chronic blood loss being its most common cause(68%).This is in accordance to study by Vijai Tilak et al[4]and Bhasin et al[6].

Our study highlights the fact that most of anaemic elderly have an underlying treatable cause.Its essential to make control strategies to include investigations for identifying the type of anaemia as well as underlying cause and not resort to micronutrient supplements without ruling out comorbidities.As normocytic anaemia is the most common blood smear diagnosis,it is important to bear in mind that normocytic blood picture in an anaemic elderly should not be disregarded.

Conclusion-

Anaemia in elderly is still an underreported and challenging situation that should be approached in a systematic manner for proper diagnosis and evaluation.This is possible by looking into its various causes and plan a management protocol to improve the quality of life.

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