VOLUME - 11, ISSUE - 01, JANUARY - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Internal Medicine

GERIATRIC ANEMIA:ETIOLOGY AND CHARACTERISTIC IN CENTRAL INDIA

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ABSTRACT

Background: Anemia is a global health problem and geriatric anemia in often overlooked as symptoms are thought to be related to ageing process.

Aim: The objectives of our study were to determine etiology and pattern of anemia in central India in tertiary care centre hospital.

Methods: This study was cross sectional observational study. It was conducted in MGMMC Indore, a tertiary care centre of Central India.Patients above age 60 years with anemia in accordance with WHO definition were selected.. Peripheral smear were used for typing and classification into microcytic, normocytic and hypochromic.

Results: Total 104 patients were studied. The mean age was 69.49 years ± 6.83 years. The mean value of hemoglobin was 8.8 ± 2.3 g/dl. The etiological distribution of anemia was iron deficiency in 32 patients (30.7%), chronic disease in 25 patients (24.03%), hematological disorders in 15 (14.4%), chronic kidney disease in 10 (9.6%) and vitamin B12 deficiency in 6 (5.7%). Unexplained anemia could be found in 10 patients (9.6%). Upper GI lesion in iron deficiency patients were found in 43.75 % and 31.25 % had a nutritional cause. Common chronic diseases causing anemia include liver disease (28%) and malignancy associated anemia (24%). The myelodysplastic syndrome was the commonest hematological disorder. In peripheral smear study the commonest was normocytic anemia (53.8%) 38.4% had microcytic anemia, and 7.6% had macrocytic anemia.

Conclusions: Geriatric anemia is treatable. In elderly population having anemia, the cause should be evaluated and not overlooked as nutrionional as it can help in early diagnosis of underlying malignancies, kidney disease and chronic inflammation.

KEYWORDS : Anemia, Etiology

INTRODUCTION

Anemia emerged as global health problem especially in resource limited setting like India where it is often overlooked and symptoms related to it are considered as a consequence of aging.[1,2] The prevalence of anemia reported in geriatric age group is in range from 8 to 44 % [3].

Ageing along with multiple comorbidities such as nutrient deficiency, inflammatory states, malignancy and reduced serum erythropeitin are the common etilogies of anemia in geriatric population. [4] Multifactorial etiology are common in elderly.

Studies have reported significant improvement in quality of life, morbidity and mortality on rectification of underlying abnormalities. [5] Etiological diagnosis should always be made for betterment of the patient.[6]

In this study, we investigated the etiological characteristic of anemia in geriatric population in tertiary care centre hospital in Central India.

METHODS

The study was a cross sectional observational study in anemic patients aged 60 and above presenting to MYH Hospital Geriatric OPD. Anemia was defined by WHO definition as Hb levels less than 13 gm in males and Hb levels less than 12gm in females [7]. Total duration of study was 1 year and 104 patients were studied.

Investigations carried out included hemoglobin levels, RBC counts, MCV, MCH, PCV , reticulocyte count, ESR, TLC , differential leucocyte count, peripheral blood smears, ferritin, liver function test, blood urea and creatinine, ferritin levels, chest x ray and ultrasonography of abdomen. These investigations were done in all the patients.

Based on MCV, typing of anemia was done. MCV level below 80 was defined as microcytic anemia, MCV between 80-100 as normocytic anemia and MCV above 100 as macrocytic anemia.

Iron levels, Vitamin B12 levels, folate levels and CRP were done according to the typing of anemia.

Bone marrow aspiration examination were done in patients with peripheral smear having immature cells, unexplained anemia, and anemia refractory to treatment.

Stool routine microscopy and upper GI endoscopy was done in all patients with iron deficiency anemia.

RESULTS

Demography

Total 104 patient with age more than 60 years and haemoglobin levels below WHO defined anemia were selected.

Mean age of anemic patients was 69.49 years ± 6.83 years.

Total number of male patients were 50 and females were 54. Male to female ratio was 0.92.

Laboratory

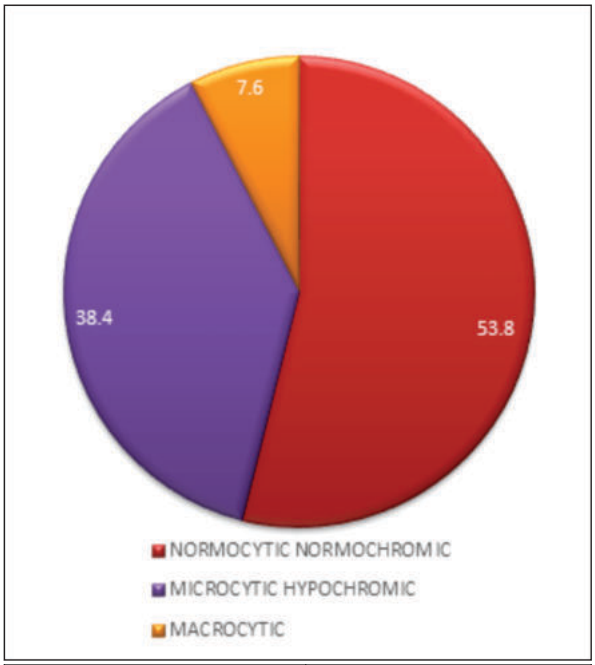
The mean haemoglobin level was 10.4 gm/dl. The mean hemoblobin level in age group 60-69 years was 10.3gm/dl and in age group 70-79 years was 9.6gm/gl and above 80 was 9 gm/dl.

Normocytic normochromic anemia was found to be the commonest in peripheral smear (n = 56, 53.8%) whereas microcytic hypochromic constituited 38.4 % (n=40) and macrocytic was 7.6 % (n = 8).

Etiology:

Iron Deficiency Anemia was the commonest etiology(n = 32).

It was followed by anemia of chronic disease (n = 25). Chronic kidney disease (n = 10), multifactorial (n = 6), vitamin B12 deficiency (n = 6), hematological disorders (n = 15) and unexplained anemia (n = 10) were observed.



ETIOLOGY	DISTRIBUTION
IDA	30.7 %
ACD	24.03 %
CKD	9.6 %
B 12 Deficiency Anemia	5.7 %
Hematological Disease	14.4 %
Unexplained Anemia	9.6 %
Multifactorial Anemia	5.7 %

In IDA the most common cause was nutritional (10), followed by chronic gastritis (5), gastrointestinal ulcer (6) , GI malignancy (3), blood loss (4) and others (4). In hematological disorder myelodysplastic syndromes (4) was the commesnt followed by chronic myeloid leukemia (2), chronic lymphoid leukemia (2), non hodgkins lymphoma (1), hodgkins lymphoma (1) , Multiple Myeloma (2) and aplastic Anemia (3). Among ACD the most common causes include chronic infection (4),chronic inflammation (4), solid malignancy associated (6), chronic liver disease (7) and others (4).

Table 2. Causes Of Anemia Of Chronic Disease

Chronic Infections	5 (20 %)
Chronic Inflammations	4 (16%)
Solid Malignancy Associated Anemia	6 (24%)
Chronic Liver Disease	7 (28%)
Others	3 (12%)

Table 3. Causes Of Iron Deficiency Anemia

Nutrional	10 (31.25 %)
Chronic Gastritis	5 (15.6%)
Gastric Ulcer	6 (18.75%)
GI Malignancy	3 (9.37%)
Blood Loss	4 (12.5 %)
Others	4 (12.5 %)

DISCUSSION

Normocytic normochromic was the commonest type of anemia in peripheral smear study, seen in 53% of cases, similar to previous studies.[8] IDA [30.7%]was most common followed by Anemia of Chronic Disease [24.03%]. 43.75 % cases of IDA on UGI showed chronic gastritis, peptic ulcer disease, esophagitis and malignancy. Nutritional deficiency [31.25 %] was found to be the most common cause of iron deficiency anemia similar to previous studies. [9]

In elderly, inflammatory conditions are associated with anemia. Recent study found that in 191 hospitalized elderly patients inflammatory disorders is associated with 70 % cases of anemia out of which 60% had CKD.[10]Anemia of chronic disease constituited 24.03 % in our study and anemia associated with CKD in another 9.6 % of the cases. In ACD, pro-inflammatory cytokines play key role in reducing RBC survival and suppression of erthropoeisis.[11]

Table : Causes Of Anemia In Geriatrics : Comparison Of Different Studies [6,12, 13]

	Sharma et all2015	Bhasin et all 2011	Guralnik et all 2004	Our Study 2021
IDA	24.8%	30%	16%	30.7%
ACD	22.9%	27%	33.6%	24.03%
CKD	12.4%	21%	12%	9.6%
B12 Deficiency/ Folate deficiency	2.9%	5%	14.3%	5.7%
Unexplained	8.6%	2%	24%	9.6%
Hematological	15.2%	6%	NA	14.4%

Unexplained anemia was found in 9.6% of the cases. Unexplained anemia in the previous studies were reported to be around 25 % [14]. The pathogenesis of unexplained anemia is thought to be malnutrition, myelodysplasia and low eryhropoeitin.[15]

Limitation: This sudy was conducted in tertiary care referral centre so asymptomatic patients and patients with mild anemia included were less than expected.

CONCLUSION

Geriatric anemia is treatable. In elderly population having anemia, the cause should be evaluated and not overlooked as nutrionional as it can help in early diagnosis of underlying malignancies, kidney disease and chronic inflammation.

Acknowledgements

Declarations

Funding: *None*

Conflict Of Interest: *None*

Ethical Approval:


ETHICS AND SCIENTIFIC REVIEW COMMITTEE
M.G.M.MEDICAL COLLEGE & M.Y.HOSPITAL, INDORE

29th May 2020

To,
Dr.Varun Mahod,
Principal Investigator,
Department of Medicine,
M.G.M.Medical College,
Indore

Subject: Regarding your thesis protocol for approval.

Dear Dr.Mahod,

Your thesis protocol entitled: "A study to evaluate prevalence,typing of anemia and effect of anemia on quality of life in geriatric patients in tertiary care centre" Has been discussed in the Ethics Committee meeting held on 14th December 2019.

I have to inform you that your revised thesis protocol: "A study to evaluate prevalence, typing of anemia and effect of anemia on quality of life in geriatric patients in tertiary care centre" Submitted by you on 27th Feb 2020.Has been approved for being forwarded to Madhya Pradesh Medical Sciences University (MPMSU), Jabalpur. The work is to be undertaken at The Department of Medicine, M.G.M. Medical College & M.Y.Hospital, Indore. This is subject to final approval by Madhya Pradesh Medical Sciences University (MPMSU), Jabalpur.

As per new Indian regulations you are required to take audiovisual proof of detailed informed consent process in subjects belonging to vulnerable group and to have only audio proof if the research involves participation from HIV or leprosy patients.

On completion, please send the final submission report of the thesis.

Thanking you

Yours truly

Prof. D.K. Jain
Chairman
Ethics and Scientific Review Committee

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