

Pattern of anemia in geriatric patients- A hospital based prospective study

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Abstract

Introduction: Anaemia is common in elderly age group and is overlooked as the symptoms such as fatigue, weakness, shortness of breath may be attributed to the ageing process itself but decline in the haematological parameter with age is not necessarily as a result of normal aging. Low Hb is a powerful prognostic marker for multiple adverse outcomes in the elderly. Clinicians should be alerted to the increased risk of morbidity, hospitalization and mortality in the elderly associated with anemia. **Aim of study:** To evaluate the prevalence of geriatric anaemia, morphological pattern of geriatric anaemia and to find its commonest morphological pattern amongst the geriatrics in hospitalized patients. **Material and Methods:** A hospital based observational prospective study of 6 months from August 2015 to January 2016 conducted in haematology section of Pathology department at L. N. Medical college and RC and attached J. K. Hospital Bhopal, M.P. in which 200 hospitalized geriatric patients both male and female above the age of 60 years were included and were evaluated for the prevalence of anemia in both the genders along with morphological pattern of anemia. **Results:** Prevalence of anemia in geriatrics including both sexes is 69% (n=138/200). In female group 73.68% (56/76) and in Male group there were 66.12% (82/124) anaemic cases. Most common morphological pattern is normocytic normochromic anaemia i.e 37.68%. **Conclusion:** Study of various morphological patterns of anaemia helps in guiding aetiology of anaemia and thus directing towards the further required investigations facilitating the choice and implementation of effective therapy.

Key words-Anaemia, Geriatrics, Morbidity, Pattern.

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Introduction

Whether anemia is marker or mediator of disease is not always clear but it is usually a signal of pathology and is associated with increased morbidity and mortality. Anaemia is common in elderly age group and is overlooked as the symptoms such as fatigue, weakness, shortness of breath may be attributed to the ageing process itself but decline in the haematological parameter with age is not necessarily as a result of normal aging [1, 2]. The number of elderly globally is projected to grow from about 524 million in 2010 to nearly 1500 million in 2050 [3].

Many studies indicate that as the age advances prevalence of anemia also increases and it is more

common in elderly female [3]. The prevalence of anaemia increases with advancing age [4]. This ranges between 8-44% worldwide with highest prevalence in men 85 years and older [5]. In Indian population the prevalence varies between 6% and 30% among males and 10% and 20% among females [6].

Despite of high prevalence of anemia in elderly only a few studies have focused on affect of anaemia on the overall outcome of elderly patient.

According to the world health organization, there are two billion people with anemia in the world and half of the anemia is due to iron deficiency [7]. Anemia is a common condition in elderly especially in hospitalized geriatric patients and is known to be associated with

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increased morbidity and mortality [8]. Hospitalised patients are at a higher risk of developing anemia [9].

Anemia in the elderly can generally be categorized into four major types: anemia related to nutrient deficiencies (iron, cobalamin and folic acid), anemia related to chronic inflammation, anemia due to renal insufficiency, and unexplained anemia [10].

Low Hb is a powerful prognostic marker for multiple adverse outcomes in the elderly. Clinicians should be alerted to the increased risk of morbidity, hospitalization and mortality in the elderly associated with anemia.

A hematological profile is the first and most common investigation undertaken for any patient in a hospital.

This study was conducted to evaluate the prevalence of geriatric anaemia, morphological pattern of geriatric anaemia and to find its commonest morphological pattern amongst the geriatrics in hospitalized patients.

Study of various morphological pattern of anemia helps in guiding etiology of anemia and thus directing towards the further required investigations.

Materials and Methods

A hospital based observational prospective study of 6 months from August 2015 to January 2016 conducted in hematology section of pathology department at L. N. Medical College and attached J. K. Hospital Bhopal, M.P. in which 200 hospitalized geriatric patients both

male and female above the age of 60 years were included and were evaluated for the prevalence of anemia in both the genders along with morphological pattern of anemia based on RBC indices and peripheral smear.

Anemic patients were diagnosed according to the WHO criteria of anemia Hb <13 gm% in males and Hb <12 gm% in females (11).

Elderly were defined as a person 60 years and above according to WHO criteria. Anemia was further graded into mild, moderate and severe according to WHO criteria as [12]: Mild anemia was defined as Hb-11-12.9 g/dl in males, 11-11.9 g/dl in females.

Moderate anemia was defined as-Hb 8-10.9 g/dl and severe anemia-Hb < 8 g/dl. Based on the morphological types, microcytic anaemia were classified in which MCV was below 80 ft, macrocytic anaemia in which MCV was > 100 ft and normocytic anaemia in which MCV was between 80-100 ft (13).

Dimorphic anemia was diagnosed when M CV was normal but RDW is more than normal (Normal =11-15%) and confirmed by peripheral smear. Blood sample were collected in the EDTA tube and tests performed for haemoglobin and RBC indices using automated Nihon kohden blood cell counter in hematology lab.

In our study we chose to include all geriatric patients admitted to our hospital, independent of grounds for hospitalization.

Results

Table -1: Age and sex distribution of all patients included in the study.

Age Groups	Female	Male	Total
61-65 years	50 (25%)	68 (34%)	120 (60%)
66--70 years	12 (06%)	30 (15%)	44 (22%)
71-75years	06 (03%)	14 (07%)	20 (10%)
76-80 years	04 (02%)	04 (02%)	08 (04%)
81-85 years	02 (01%)	04 (2%)	02 (01%)
86-90 years	02 (01%)	04 (02%)	06 (03%)
Total	76 (38%)	124 (62%)	200

Total number of cases included in the study =200. Male 62% (124), Female 38% (76), Maximum number (60%) of cases are in the group of 61-65years.

Table No.-2: Distribution of Anemic patients according to their age and sex.

Age Groups	Female	Male	Total
61-65 years	34 of 50 (68%)	42 of 68 (61.76%)	76 of 118 (64.40%)
66-70 years	10 of 12 (83.33%)	20 of 30 (66.66%)	30 of 42 (71.42%)
71-75years	05 of 06 (83.33%)	10 of 14 (71.42%)	15 of 20 (75%)
76-80years	03 of 04 (75%)	03 of 04 (75%)	06 of 08 (75%)
81-85 years	02 of 02 (100%)	03 of 04 (75%)	05 of 06 (83.33%)
86-90 years	02 of 02 (100%)	04 of 04 (100%)	06 of 06 (100%)
Total	56 of 76 (73.68%)	82 of 124 (66.12%)	138 of 200 (69%)

Prevalence of anemia in geriatrics including both sexes is 69% (n=138). In female group 73.68% (56/76) and in Male group there were 66.12% (82/124) anaemic cases. Most affected age groups of anemic patients including both sexes is 81-90 years with prevalence of anemia ranging 83-100%.

Table No.-3: Distribution of morphological pattern of anemia.

Morphological pattern of Anemia	Female	Male	Total
Normocytic Normochromic	22 (39.29%)	30 (36.58%)	52 (37.68%)
Normocytic Hypochromic	04 (7.14%)	20 (24.39%)	24 (17.39%)
Microcytic Hypochromic	26 (46.43%)	18 (21.95%)	44 (31.88%)
Macrocytic	02 (3.57%)	04 (4.88%)	06 (4.35%)
Dimorphic	02 (3.57%)	10 (12.20%)	12 (8.70%)
Total number of anemic patients/total number of patients	56/76	82/124	138/200

Most common morphological pattern is normocytic normochromic anemia i.e 37.68% followed by microcytic hypochromic anemia i.e 31.88% of total anaemic patients including both sexes.

In the female anemic group most common pattern is microcytic hypochromic anemia i.e 46.43% and in Male anemic group most common pattern is normocytic normochromic anemia i.e 36.58%

Table No.-4: Distribution of degree of Anemia in both female and male group

Grades of anemia	Total (males and females)
Mild Anemia	93 (67.39%)
Moderate Anemia	21 (15.22%)
Severe Anemia	24 (17.39%)
Total anemic patients	138

Mild degree of anemia is present in most 67.39%, (n= 93) of cases including both sexes

Discussion

It is easy to overlook anaemia in elderly since symptoms such as fatigue, weakness and shortness of breath may be attributed to the aging process itself, but the decline of haemoglobin and concomitant increased degree of anaemia with age is not necessary a result of

normal aging [2,3]. Anemia is a common condition in elderly especially in hospitalized geriatric patients and is known to be associated with increased morbidity and mortality [8] Hospitalised patients are at a higher risk of developing anemia [9].

Present study included elderly patients ageing from 60-90 years.

In our study prevalence of anemia including both sexes is 69 % (138/200).

- S.Amarneel et al [14] in a study noted that prevalence of anemia was 52.5%.
- Similarly Saurabh R. Srivastava [15] also noted that the prevalence of anemia in elderly population was 68.5%.

Our study shows that prevalence of anemia increases with advancing age.

- Ferrucci L, also noted similar results [4].

Using World health organization criteria the prevalence of anemia is found to range from 8-44 % with highest prevalence in men 85 years and older [5].

In our study out of 200 cases 138 patients were found to be anemic which included 56 /76 females and 82 /124 males.

In our study prevalence of anemia is more in females (73.68 %).

- This was in correlation with Sourabh R Shrivastava et al study which also noted prevalence of anemia more in females [15].
- This differs from National Health and Nutrition Examination Survey (NHANES- III) carried out in United States which revealed prevalence of anemia is 11% in males and 10.2% in females in people ageing 65 and above [16].

This contradiction could be due to hospital based study in comparison to population based study of NHANES-III Discrepancy may be accountable to the fact that in contrast to the current study with its population of hospitalized elderly patients and most other studies have examined ambulant patients or older people in the community [17, 18].

Anemia in most cases was found to be mild 67.3% (n= 93) with Hb level > 10 gm/dl in accordance with previously published results [18, 19]. However, even mild anaemia is frequently associated with negative outcome with regard to mortality and morbidity in the elderly [20] and should therefore not be accepted as a normal physiological response to the aging process.

In our study, morphological pattern of anaemia was established by RBC indices and confirmed by peripheral smear.

The present study highlighted that normocytic normochromic was the commonest morphological pattern of anaemia among elderly including both sexes constituting 37.68% of total anaemic patients. Microcytic hypochromic anemia constituted 31.88% followed by normocytic hypochromic anemia constituting 17.39%.

Saurabh R Shrivastava et al noted [15] normocytic normochromic anemia in 69.8% cases followed by microcytic hypochromic in 11.6% followed by normocytic hypochromic in 8.25% including both sexes. Ania et al [21] observed most common pattern in males was normocytic (83%) followed by microcytic anemia (14%) as compared to females of which 80 % were normocytic and 16 % is microcytic. According to S. Amarneel et al [14] 41.6 % males have normocytic normochromic pattern followed by 16.66% microcytic anaemia compared to females 33.33% normocytic normochromic and 20.0% microcytic anemia.

Anemia in elderly may be seen in coexistence with other disease It is therefore essential that the treating physician is aware of the coexistence of anemia in elderly.

Conclusion

Anemia should never be accepted as consequence of normal ageing process and should be thoroughly investigated in geriatric age group. Study of various morphological patterns of anemia helps in guiding etiology of anemia and thus directing towards the further required investigations facilitating the choice and implementation of effective therapy.

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