



A study of clinical findings & haematological parameters of anemia in elderly.

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ABSTRACT

Anemia is a common concern in geriatric age group (more than 60 years of age) and can have significantly more severe complications than anemia in younger adults. As anemia is a sign, not a diagnosis, detail evaluation is must to identify the underlying cause. The purpose of this study was to study the clinical profile of elderly patients with anemia and to study characteristics of hematological types of anemia in such patients. Confirming the type of anemia is critical to direct the investigation for profiling the etiology since it is well known that the treatment of anemia goes a long way in improving the overall outcome and quality of life.

Aim & Objectives:

To study various symptoms, clinical findings & haematological parameters of anemia in elderly.

Materials & methods:

This was a retrospective observational type of study. The study was conducted on patients admitted in medicine department of SKN Medical College & General Hospital, Pune during period Jan 2015 to Jan 2016.

The case records of 100 patients of anemia were reviewed. Patients with diagnosis of anemia, Hb <10gm% and age equal to or more than 60 were selected for the study. Data was collected in terms of clinical findings & laboratory parameters. All cell counts were done on automated coulter machine & peripherals smear reported by pathologist. Data was analysed using standard statistical tests. Results are presented in form of tables & graphs.

Conclusion:

- 1) Anemia in elderly has wide clinical and haematological spectrum. Thorough clinical assessment and detail lab investigations are vital for diagnosis. Findings of pallor, edema, icterus & splenomegaly are commonly seen in our study.
- 2) Non specific symptoms like fatigue and weakness should not be ignored in the geriatric population as they could be important pointers towards presence of anemia. Hence, it is necessary to evaluate the anemia status in all elderly patients to improve the overall outcome and quality of life.

KEYWORDS : Anemia; Elderly

Introduction:

Anemia is a common concern in geriatric age group. In this population, it can have significantly more severe complications than in the younger adults and can greatly hamper the quality of life [1]. WHO criteria determine anemia when the hemoglobin level is < 13g/dl in male and < 12 g/dl in female. The prevalence of anemia has been found to range from 8 to 44% [2]. NHANES-III of WHO study revealed prevalence of anemia as 11% of men and 10.2% of women aged 65 years and older [3]. Multiple pathophysiological abnormalities in a single patient are well known in this age group. Rectification of these abnormalities contributes significantly to overall improved outcome with respect to physiological parameters as well as quality of life (4).

It is easy to overlook anemia in the elderly, since symptoms such as fatigue, weakness, shortness of breath may be attributed to the ageing process itself but the decline of hemoglobin and concomitant increased degree of anemia with age is not necessarily, a result of normal ageing. [1,5]. So anemia should not be accepted as an inevitable consequence of ageing. Therefore, we have studied the proportion and the morphological patterns of anemia in elderly patients attending in a tertiary care hospital.

Aims and Objectives:

- 1) To study various symptoms & clinical findings of anemia in elderly.
- 2) To study various haematological parameters of anemia in elderly.

Material and Methods:

This was a retrospective observational type of study. The study was conducted on patients admitted in medicine department of SKN Medical College & General Hospital, Pune during period Jan 2015 to Jan 2016. The study was approved by the local ethical committee and all persons gave their informed consent prior to their inclusion in the study. The case records of 100 elderly patients of anemia were reviewed.

Inclusion criteria:

- 1) Patients with diagnosis of anemia, Hb <10gm%

- 2) Age equal to or more than 60.

Cases fulfilling above criteria were selected for the study.

A detailed history, complete general, physical examination and systemic review of these patients were undertaken. Detailed laboratory studies of hemoglobin and diagnostic tests were done to fix the patterns of anemia. Patterns of anemia were classified based on RBC indices and further correlated by peripheral smear. Microcytic anemia was defined as MCV below 80 fl, normocytic as MCV between 80 and 100 fl and macrocytic anemia by an MCV above 100 fl. Dimorphic anemia 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), Platelet Count (PC), Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin Concentration (MCHC), Mean Corpuscular Hemoglobin (MCH), Packed Cell Volume (PCV), and peripheral smear for blood picture. All cell counts were done on automated coulter machine & peripherals smear reported by pathologist. Data was analysed using standard statistical tests. Results are presented in form of tables & graphs.

Bone marrow studies (aspiration/biopsy) were carried out in patients with blood smear showing immature white cells or nucleated red cells and unexplained progressive or unresponsive anemia. Vitamin B12 and folate assays were done for dimorphic and macrocytic anemia or in patients with normocytic or microcytic blood picture in whom no other cause could be found.

Additional investigations as indicated for detection of underlying cause such as chest X-ray, ultrasonography (USG) of abdomen and pelvis, stool for parasites and occult blood, upper gastrointestinal (GI) endoscopy and colonoscopy, serum electrophoresis, tissue biopsy, imaging-computed tomography (CT)/magnetic resonance imaging (MRI), anti nuclear antibodies (ANAs) were performed. Based on

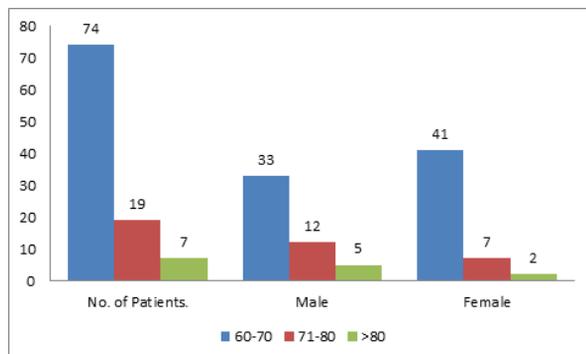
clinical symptoms, laboratory parameters or imaging studies, patients were classified according to the underlying etiology.

RESULTS:

Table 1: Age distribution

Age Group(yrs)	No. of Patients.	Male	Female
60-70	74	33	41
71-80	19	12	7
>80	7	5	2

Figure 1: Age distribution



In the present study age of patients ranged from 60 to 85 years. The mean age was found to be 67.81 yrs. Maximum number of patients were in 60-70 years of age range. Proportions of anemia in males was 50% and in females 50%.

Nissenson et. al. study has revealed that prevalence of anemia in general elderly population has been 7.5% for males and 20% for females⁶. But present study shows equal prevalence of anemia in females and males because it is a tertiary care study & only inpatients were included.

Table no 2: Clinical Findings

	No of cases	Percentage
General symptoms	76	76%
Pallor	96	96%
Jaundice	11	11%
Swelling of feet	38	38%
Hepatomegaly	10	10%
Splenomegaly	12	12%

General symptoms like easy fatigue, shortness of breath & weakness were present in 76% patients. Pallor was present in almost all patients as in most of the studies. Oedema feet was present in 38% & clinical jaundice was seen in 11% study population. Hepatomegaly & splenomegaly was present in 10% & 12% of patients each.

These clinical findings are comparable with other studies like Hirachand S⁷, Vineetha Unnikrishnan⁸.

Table 3: Distribution of various laboratory parameters.

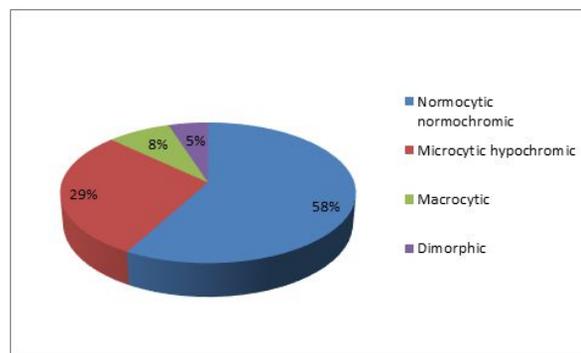
Lab parameters	Mean
HB	8.35 gm%
TLC	7786.36/cmm
MCV	79.94fl
PC	207694/cmm

Mean haemoglobin in the study population was low (8.35 gm %). This is probably because this is a tertiary care hospital & only inpatients were included in the study. Mean MCV of all patients was 79.94 fl.

Table 4: Peripheral Smear Distributions:

RBCs Cytology.	Cases
Normocytic normochromic	58
Microcytic hypochromic	29
Macrocytic	8
Dimorphic	5

Figure 2: Anemia characterization based on peripheral smear findings.



All the types of anemia based on peripheral smear were evident, normocytic: normochromic being the commonest constituting 58%, followed by microcytic hypochromic 29%, macrocytic 8% and dimorphic 5%.

Chul won choi et. al. in their study of anemia in elderly have observed that most common pattern of anemia was found to be normocytic anemia amounting to 93.5% and 3.5% of them being microcytic, and 3% were macrocytic anemias⁹.

Ania et. al. has diagnosed anemia in elderly males, being normocytic in 83%, microcytic in 14% and macrocytic in 3%, as compared women, which has been microcytic in 16%, normocytic in 80%, and macrocytic in 4% of cases¹⁰.

Table 5: Etiology of Anemia.

ETIOLOGY	NO. OF CASES	PERCENTAGE
NUTRITIONAL	28	28%
CKD	11	11%
CLD	8	8%
CHRONIC BLOOD LOSS	4	4%
MALIGNANCY	6	6%
HEART DISEASE	11	11%
OTHERS	32	32%

Analysis of the patients depending on the underlying etiological condition revealed that majority of the patients had anemia of chronic disease. 11 patients had chronic kidney disease (CKD) and 8 patients had chronic liver disease (CLD). Other etiologies which were diagnosed in these patients were 4 patients had history of blood loss, 6 elderly were found to have malignancies. Due to advanced age and comorbidities 11 patients had IHD.

Anemia of chronic disease is the most common form of anemia in the elderly which may be the cause for highest prevalence of normocytic anemia. Associated diseases found in present study were mainly chronic diseases, for e.g. renal diseases, liver diseases, infectious diseases, diabetes, hypertension etc. Thus to identify the cause of anemia, detailed investigations have to be done.

Conclusion:

- 1) Anemia in elderly has wide clinical and haematological spectrum. Thorough clinical assessment and detail lab investigations are vital for diagnosis. Findings of pallor, edema, icterus & splenomegaly are commonly seen in our study.
- 2) Non specific symptoms like fatigue and weakness should not be ignored in the geriatric population as they could be important pointers towards presence of anemia. Hence, it is necessary to evaluate the anemia status in all elderly patients to improve the overall outcome and quality of life.

References:

1. Bhasin A, Rao MY. Characteristics of Anemia in Elderly: A hospital based study in South India. Indian Journal of Haematology and Blood Transfusion 2011; 27(1): 26-32.
2. World Health Organization. Definition of an older or elderly person. Retrieved August 29, 2010. <http://www.who.int/healthinfo/survey/ageingdefnolder/en/index.html>
3. Ferrucci L, Semba RD, Guralnik JM, et al. Proinflammatory state, hepcidin and anemia in older persons. Blood. 2010;115:3810-3826
4. Helda Khusun, Ray Yip, Werner Schultink and Drupadi HS Dillon. World

- Health Organization Hemoglobin Cut-Off Points for the Detection of Anemia. *Journal of Nutrition* 1999; 129:1669-74.
5. Hee-Seon Kim and Byung-Kook Lee. Cross-sectional study on the prevalence of anemia among rural elderly in Asan. *Nutr Res Pract* 2008 Spring; 2(1):8-12.
 6. Nissenson AR, Goodnough LT, Dubois RW. Anemia: not just an innocent bystander? *Arch Intern Med* 2003; 163:1400,1404.
 7. Hirachand S, Singh R, Gurung P and Thapa R. "Clinico-haematological profile of megaloblastic anemia", *Journal of institute of medicine*, apr 2014, 36:1,38-42.
 8. Vineetha Unnikrishnan, Tarun Kumar Dutta, Bhawana A. Badhe, Zachariah Bobby, Ashish K. Panigrahi, "Clinico-aetiologic profile of macrocytic anemias with special reference to megaloblastic anemia", *Indian J. Hematol. Blood Transfus* 24(4):155-165.
 9. Choi CW, Lee J, Park KH, Yoon SY, Choi IK, Oh SC, Seo JH, Kim BS, Shin SW, Kim YH, Kim JS. Prevalence and Characteristics of Anemia in the Elderly: Cross-Sectional Study of Three Urban Korean Population Samples. *Am J Hematol* 2004;77 (1):26-30.
 10. Ania BJ, Suman VJ, Fairbanks VF. Incidence of anemia in older people: an epidemiologic study in a well defined population. *J Am Geriatric Soc* 1997; 45: 825-31.