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Clinico-demographic profile of anaemic patients presented to Medicine OPD of tertiary care hospital

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Abstract
Aim: To provide clinical and laboratory profile of anaemia patients at a tertiary care hospital.
Material and methods: This was a prospective observational study conducted in the Department of General Medicine, Metro Hospital and Cancer Research Centre, Jabalpur, MP, India from October 2018 to January 2020. In all 120 patients thorough history was taken, general physical examination and systemic examination were done. Patients were subjected to routine blood investigations including complete blood count, peripheral smear study and serology for viral markers.
Results: Among 120 patients studied 35 (29.17%) were males and 85(70.83%) were females. In our study it was found that anaemia had its highest occurrence in the age group of 20-30 years 65 (57.17%) followed by below 20 year age group 25(20.83%). 59 (49.17%) were easy fatiguability and generalised weakness the most common symptoms of anaemia in our study. Incidentally detected patients constituted 32.5% of patients and were the second most common in occurrence. This was followed by breathlessness seen in 20.83% of patients. Pallor was noted in all patients. Platonychia/koilonychia suggesting iron deficiency anaemia was seen in 34 (28.33%) of patients, whereas knuckle pigmentation suggestive of megaloblastic anaemia was observed in 23(19.17%) of patients. 19 (15.83%) patients presented with anaemia in failure as evidenced by elevated jugular venous pulse and pedal oedema. On systemic examination haemic murmurs on CVS examination were detected among 29(24.17%) patients. Bibasilar crepts not attributable to other diseases were found among 6 patients. Isolated hepatomegaly was found in 16 (13.33%), splenomegaly in 9(7.5%) and hepatosplenomegaly was found in 8 patients. Moderate anaemia was seen in 15% of patients.
Conclusion: we conclude that some extensive steps taken by WHO and Government bodies in educating and treating people about the disease.

Keywords: anaemia, clinical profile, laboratory profile

Introduction

Anaemia is a Greek term meaning lack of blood or bloodlessness. Although it has been in use in a general way for a long me the word first appeared in English medical usage in 1829. Anaemia is an important clinical condition in practice for three valid reasons, as is highly prevalent, as the cause of much morbidity, as eminently treatable in majority. [1] Anaemia is defined as reduction of the total red cell mass below normal limits. Anaemia arises either because red blood cell (RBC) production is inadequate or because RBC life span is shortened. Anaemia reduces the oxygen carrying capacity of the blood leading to tissue hypoxia. Anaemia is usually diagnosed based on a reduction in the haematocrit (the ratio of packed red cells to the blood volume) and the hemoglobin concentration of the blood to levels that are below the normal range. [2] (Hemoglobin (gm/dl) 13.6–17.2 for Males & 12.0–15.0 for females). [3] Anaemia is an indicator of poor nutrition and poor health. It is a global public health problem affecting both developed and developing nations. In 2002 iron deficiency anaemia was considered amongst the most important contributing factor to the global burden of disease.[4] India is among the countries with highest prevalence of Anaemia in the world. It is estimated that about 20%-40% of maternal deaths in India are due to Anaemia; India contributes to about 50% of global maternal deaths due to Anaemia.[5] Anaemia are of different types. Iron deficient Anaemia is the most common type of anaemia1 .Quite frequently faulty nutrition is the cause of Anaemia. There are many factors like inadequate diet, unsatisfactory method of preparation of food, faulty social habits, unhygienic practices, associated infections and infestations contributing to the causation of

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nutritional Anaemia. [6, 7] India lies partly in the tropics and partly in subtropics with extreme variations of climate. In the region where hot and humid climate prevail throughout the best part of the year, the loss of iron through sweat is appreciable. Iron is lost through sweat to the extent of 15mg per month. This suggests dermal loss of iron should be one of the possible contributing factors in the genesis of iron deficiency Anaemia in the tropics. [6,7] Our study aimed to provide clinical and laboratory profile of anaemia patients at a tertiary care hospital in Bihar, India.

Material and methods
This was a prospective observational study conducted in the Department of General Medicine, India from October 2018 to January 2020, after taking the approval of the protocol review committee and institutional ethics committee. 120 patients with anaemia were included in the study.

Inclusion criteria
- Patients more than or equal to 16 years of age of both sexes.
- Patients with anaemia as per WHO definition.

Exclusion criteria
- Patients not willing to give informed consent.

Methodology
In all 120 patients thorough history was taken, general physical examination and systemic examination were done. Patients were subjected to routine blood investigations including complete blood count, peripheral smear study and serology for viral markers. Required radiological investigations were done and further studies like bone marrow examination, iron profile, vitamin B12 and folate levels were done in selected patients who did not respond to therapy started based on peripheral smear report. Stool for occult blood was done among elderly patient presenting with iron deficiency anaemia

Results
Among 120 patients studied 35(29.17%) were males and 85(70.83%)were females. In our study it was found that anaemia had its highest occurrence in the age group of 20-30 years 65(57.17%) followed by below 20 year age group 25(20.83%). It was least among individuals aged above 50 years 3(2.5%) Table 1.

Table 1: Demographic profile of the patients

Gender	N=120(%)
Female	85(70.83%)
Male	35(29.17%)
Age (years)	
Below 20 years	25(20.83%)
20-30years	65(57.17%)
30-40years	15(12.5%)
40-50years	12(10%)
Above 50years	3(2.5%)

59 (49.17%) were easy fatiguability and generalised weakness the most common symptoms of anaemia in our study. Incidentally detected patients constituted 32.5% of patients and were the second most common in occurrence. This was followed by breathlessness seen in 20.83% of patients (Table 2).

Table 2: Symptomatology of anaemia patients

Symptoms	Number of patients
Easy fatigability and generalised Weakness	59 (49.17%)
Breathlessness	25 (20.83%)
Swelling of limbs, puffiness of face	10 (8.33%)
Giddiness	13 (10.83%)
Chest pain	3 (2.5%)
Fever	19 (15.83%)
Tinnitus	7 (5.83%)
Asymptomatic (incidentally detected)	39 (32.5%)

Pallor was noted in all patients. Platonychia/koilonychia suggesting iron deficiency anaemia was seen in 34 (28.33%) of patients, whereas knuckle pigmentation suggestive of megaloblastic anaemia was observed in 23(19.17%) of patients (Table 3).
19 (15.83%) patients presented with anaemia in failure as evidenced by elevated jugular venous pulse and pedal oedema. None of the patients in this study was due to hemolysis. Hence icterus seen in 9 (7.5%) patients was due to ineffective erythropoiesis seen in patients with megaloblastic anaemia. On systemic examination haemic murmurs on CVS examination were detected among 29(24.17%) patients. Bibasilar crepts not attributable to other diseases were found among 6 patients. Isolated hepatomegaly was found in 16 (13.33%), splenomegaly in 9(7.5%) and hepatosplenomegaly was found in 8 patients.

Table 3: Signs in patients with anaemia

Signs	Number of patients
Tachycardia	61 (50.83%)
Tachypnea	22 (18.33%)
Elevated JVP	19 (15.83%)
Pallor	120 (100%)
Icterus	9 (7.5%)
Pedal oedema	17(14.17%)
Platonychia/koilonychia	34 (28.33%)
Knuckle pigmentation	23(19.17%)

Table 4: Degree of anaemia

Degree	Number of patients
Mild anaemia	0 (0%)
Moderate anaemia	18 (15%)
Severe anaemia	102 (85%)

On laboratory examination degree of anaemia (as defined by WHO) was distributed as shown in Table 4. None of the patients admitted in the hospital had mild anaemia (defined as Hb between 11-11.9 g/dl in women and 11-12.9 g/dl in men aged 15 years or more). Moderate anaemia (defined as Hb between 8 to 10.9 g/dl in both males and females) was seen in 15% of patients. Whereas severe anaemia (defined as Hb less than 8 g/dl in both males and females) showed 102 (85%) highest occurrence (Table 4). Microcytic hypochromic anaemia 57 (47.5%) attributed to iron deficiency unless proved otherwise was the most common form of anaemia in our study. Dimorphic anaemia 34 (28.33%) was the second most common suggesting that nutritional anaemia continues to predominate in our part of world (Table 5).

Table 5: Peripheral smear study in patients with anaemia

Peripheral smear	Number of patients
Microcytic hypochromic anaemia	57 (47.5%)
Macrocytic anaemia	3 (2.5%)
Dimorphic anaemia	34 (28.33%)
Normocytic normochromic anaemia	26 (21.67%)

Discussion

In our study it was found that anaemia had its highest occurrence in the age group of 20-30 years 65(57.17%) followed by below 20 year age group 25(20.83%). It was least among individuals aged above 50 years 3(2.5%). predominantly affecting the working class of the population. Similar observations were made in a study conducted by Azad KL *et al.* [8] Statistically 70.83% of patients were females and rest were males depicting a female preponderance. Such female dominance was also shown in studies conducted by Alvarez-Uria G *et al*, and Talwelkar SR *et al*. [9, 10] WHO statistics noted that the prevalence of iron deficiency anaemia , most common cause of anaemia in females in the age group of 15-49 years is 52%. [11] This study upholds this fact as well. In our study 59 (49.17%) were easy fatiguability and generalised weakness the most common symptoms of anaemia in our study. Incidentally detected patients constituted 32.5% of patients and were the second most common in occurrence. Easy fatiguability as the predominant symptom was also noted in studies conducted by Dashratham P *et al*, and Gayathri BN *et al*. [12, 13] Incidentally detected anaemia constituted the second most common class. This may be explained by the fact of lack of knowledge or presence of chronic anaemia. 25 (20.83%) presented with breathlessness whereas puffiness of face and swelling of limbs was seen in 10 (8.33%) of patients. Fever secondary to anaemia and not attributable to any other cause was seen in 19 (15.83%) patients. Fever as a symptom of anaemia was also noted in study conducted by S. Selvamuthukumaran.[14] Anaemia causing tinnitus after ruling out neuro-otologic and other secondary causes was seen in 7 (5.83%) patients.

As far as signs on general physical examinations were concerned pallor was the universal finding present in 100% of patients. Such predominance of pallor as a sign on examination was noted in studies conducted by Gayathri BN *et al*, and Vineetha *et al*. [13,15] This was followed by tachycardia seen in 61 (50.83%) patients. 19 (15.83%) patients presented with anaemia in failure as evidenced by elevated jugular venous pulse and pedal oedema. None of the patients in this study was due to hemolysis. Hence icterus seen in 9 (7.5%) patients was due to ineffective erythropoiesis seen in patients with megaloblastic anaemia. Signs depicting the etiology i.e platonychia/koilonychia suggesting iron deficiency anaemia and knuckle pigmentation suggesting megaloblastic anaemia were seen in 34 (28.33%) and 23(19.17%) patients respectively. On systemic examination haemic murmurs were detected among 29 patients (24.17%). Dashratam P *et al*, in their study found that 76% of patients had cardiac murmurs. [12] Hepatomegaly was the predominant finding on abdominal examination seen in 16 (13.33%) patients whereas palpable splenomegaly was seen in 9(7.5%) patients. Both liver and spleen were palpable in 8 patients. This study noted that 85% of cases presented as severe anaemia. This may be because of the reason that mild anaemia is neglected by people and they do not approach a doctor. Another reason may be illiteracy and lack of knowledge which makes them present to the hospital as severe anaemia cases. None of mild anaemia cases were noted in our study as they are often treated on outpatient basis and our study targeted inpatients. On peripheral smear examination microcytic hypochromic anaemia attributable to iron deficiency 57 (47.5%) patients based on examination and observation of response to therapy was the most common cause of anaemia. Similar findings were noted by Kouli R *et al,* and Milman N *et al*. [16, 17] This was followed by dimorphic anaemia was found in 34 (28.33%) patients as the second most common cause of anaemia. Hence nutritional anaemia continues to predominate as the most common cause of anaemia in our part of world. Pure megaloblastic anaemia was seen in only 3 patient, 26 patients (21.67%) presented with normocytic normochromic anaemia.

Conclusion

The present study concluded that severe anaemia with or without failure continues as the most common mode of presentation of anaemia in medicine department of the hospital.

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