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ORIGINAL ARTICLE

To investigate the profile of anaemia in a hospital that provides specialized medical services

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ABSTRACT:

Aim: To investigate the profile of anaemia in a hospital that provides specialized medical services. **Material and Methods:** The study was an observational prospective investigation carried out within the Department of General Medicine. A comprehensive medical history was obtained from all 100 patients, followed by a thorough general physical examination and systemic examination. The patients underwent standard blood tests, which included a complete blood count, examination of a blood sample under a microscope, and testing for viral markers using serology. **Results:** Pallor was noted in all patients. Platonychia/koilonychia suggesting iron deficiency anaemia was seen in 29(29%) of patients, whereas knuckle pigmentation suggestive of megaloblastic anaemia was observed in 20(20%) of patients. Moderate anaemia was seen in 15% of patients. Whereas severe anaemia showed 85 (85%) highest occurrence. **Conclusion:** It can be inferred that the World Health Organization and governmental entities have implemented comprehensive measures aimed at educating and providing medical care to individuals affected by the disease.

Keywords: Anaemia, Clinical profile, Laboratory profile

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INTRODUCTION

Anemia is a significant hematological disorder that affects infants and young children. The aforementioned conditions lead to noteworthy levels of illness and death among children, thereby representing a public health concern of significant magnitude.[1] Anemia is a medical condition that is typically characterized by a decrease in the mass of red blood cells or the concentration of hemoglobin in the blood. This reduction in oxygen-carrying capacity of the blood can lead to tissue anoxia, which can manifest in a variety of signs and symptoms. Anemia is not considered a standalone diagnosis, but rather a clinical manifestation indicating the presence of an underlying medical condition. The manifestation of anemia in pediatric patients is distinct from that observed in adult individuals, characterized by a more pronounced and rapid onset. In developing regions, a significant proportion of children aged 0-4 years (51%) and 5-12 years (46%) suffer from anemia.[1-3]

Anaemia is a clinical manifestation that may suggest inadequate nutritional status and compromised overall health. The issue at hand is a matter of global public health that has an impact on nations across the spectrum of development. Iron deficiency anemia was identified as a significant contributor to the worldwide burden of disease in 2002.[4,5] India exhibits a high prevalence of anaemia in comparison to other countries globally. According to estimates, Anaemia accounts for approximately 20%-40% of maternal mortalities in India, with India being responsible for 50% of worldwide maternal deaths attributed to Anaemia. There exist various types of anemia. Iron deficiency is a condition characterized by a lack of sufficient iron in the body. Anemia is the most prevalent form of anemia.Anaemia is often attributed to inadequate nutrition. Nutritional anemia is caused by various factors such as insufficient dietary intake, improper food preparation methods, flawed social behaviors, unhygienic practices, and concurrent infections and infestations.[6,7] India is situated in both the tropical and subtropical regions, experiencing significant fluctuations in its climate. In areas characterized by a predominantly hot and humid climate, there is a significant loss of iron through perspiration. A monthly loss of 15mg of iron occurs through perspiration. This implies that the depletion of iron through the skin may be a plausible element in the development of iron deficiency. The prevalence and impact of anaemia in tropical regions.[6,7]

MATERIAL AND METHODS

The study in question was an observational prospective investigation carried out within the Department of General Medicine. Prior to conducting the study, the protocol review committee and institutional ethics committee granted their approval. The study incorporated a sample size of 100 individuals diagnosed with anaemia.

INCLUSION CRITERIA

- Patients more than or equal to 18 years of age of both sexes.
- Patients with anaemia as per WHO definition.

EXCLUSION CRITERIA

- Patients not willing to give informed consent.

Complete histories, general physical examinations, and systemic examinations were performed on all 100 patients. Patients had standard blood tests such as complete blood counts, peripheral smear studies, and serology for viral indicators. According to the peripheral smear report, the necessary radiological examinations were completed, and in some patients who did not react to treatment, further tests such as a bone marrow examination, iron profile, vitamin B12 levels, and folate levels were carried out. Among elderly patients presenting with iron deficiency anemia, stools were examined for hidden blood.

RESULTS

Among 100 patients studied 30(30%)were males and 70(70%)were females. In our study it was found that anaemia had its highest occurrence in the age group of 20-30 years 53(53%) followed by below 20 year age group 22(22%). It was least among individuals aged above 50 years 3(3%) Table 1.

Table 1. Demographic profile of the patients

Gender	Number and percentage
Female	70
Male	30
Age (years)	
Below 20 years	22
20-30years	53
30-40years	13
40-50years	9
Above 50years	3

51(51%) were easy fatiguability and generalised weakness the most common symptoms of anaemia in our study. Incidentally detected patients constituted 34% of patients and were the second most common in occurrence. This was followed by breathlessness seen in 22% of patients (Table 2).

Table 2: Symptomatology of anaemia patients

Symptoms	Number of patients
Easy fatigability and generalised weakness	51
Breathlessness	22
Swelling of limbs, puffiness of face	9
Giddiness	12
Chest pain	4
Fever	17
Tinnitus	7
Asymptomatic (incidentally detected)	34

Pallor was noted in all patients. Platonychia/koilonychia suggesting iron deficiency anaemia was seen in 29(29%) of patients, whereas knuckle pigmentation suggestive of megaloblastic anaemia was observed in 20(20%) of patients. (Table 3).

17(17%) 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(9%) patients was due to ineffective erythropoiesis seen in patients with megaloblastic anaemia. On systemic examination haemic murmurs on CVS examination were detected among 25(25%) patients. Bibasilar crepts not attributable to other diseases were found among 7 patients. Isolated hepatomegaly was found in 14(14%), splenomegaly in 9(9%) and hepatosplenomegaly was found in 9 patients.

Table 3: Signs in patients with anaemia

Signs	Number of patients
Tachycardia	52
Tachypnea	19
Elevated JVP	17
Pallor	100
Icterus	9
Pedal oedema	15
Platonychia/koilonychia	29
Knuckle pigmentation	20

Table 4: Degree of anaemia

Degree	Number of patients
Mild anaemia	0
Moderate anaemia	15
Severe anaemia	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 85 (85%) highest occurrence (Table 4). Microcytic hypochromic anaemia 45(45%) attributed to iron deficiency unless proved otherwise was the most common form of anaemia in our study. Dimorphic anaemia 29(29%) 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	45
Macrocytic anaemia	3
Dimorphic anaemia	29
Normocytic normochromic anaemia	23

DISCUSSION

The study revealed that the prevalence of anaemia was highest among individuals aged 20-30 years. The majority of the sample population, comprising 53% of the total, belonged to the age group above 53 years. The second largest group was represented by individuals below 20 years of age, accounting for 22% of the sample. The prevalence of this condition was found to be lowest among individuals aged 50 years and above, at 3%. This phenomenon primarily impacts individuals belonging to the working class demographic. Patra S. et al. conducted a study that reported comparable findings.[8] The statistical data reveals that a majority of 71% of the patients were females, indicating a notable female preponderance, while the remaining patients were males. Studies conducted by Jain S. et al and Mehta BC et al also demonstrated female dominance. [9,10] According to statistics provided by the World Health Organization, the incidence of iron deficiency anemia, which is the primary cause of anemia among females aged 15-49, is estimated to be 52%.[11] This assertion is also supported by the findings of this study. The study revealed that 51% of the participants experienced easy fatiguability and generalised weakness, which were identified as the most prevalent symptoms of anaemia. Patients who were incidentally detected accounted for 34% of the total patient population and ranked as the second most frequently occurring group. Studies conducted by Kapur D et al and Gayathri BN et al have also reported easy fatiguability as the predominant symptom.[12,13] The second most prevalent category was anaemia that was detected incidentally. This phenomenon could be attributed to a deficiency in knowledge or the presence of persistent anemia. Out of the total number of patients, 22% exhibited symptoms of breathlessness, while 9% displayed manifestations of facial puffiness and limb swelling. A total of 17 patients, accounting for 17% of the sample, exhibited fever as a secondary symptom of anaemia, with no discernible cause for the fever observed. The presence of fever as a manifestation of anaemia was also observed in a study conducted by Shahabuddin AK et al.[14] In 7 (7%) patients, tinnitus was observed as a result of anaemia after excluding neuro-otologic and other secondary causes.

Regarding indications observed during routine physical examinations, pallor was identified as a ubiquitous manifestation, being present in all patients. Gayathri BN et al and Unnikrishnan V et al have reported the observation of a significant prevalence of pallor as a clinical indicator during their respective studies.[13,15] Subsequently, tachycardia was observed in 52 (52%) of the patients. Seventeen percent of the patients exhibited anemia in failure, which was confirmed by the presence of elevated jugular venous pulse and pedal edema. Hemolysis was not identified as the cause of any of the patients in this particular study. Therefore, the observed icterus in 9 out of 100 patients (9%) can be attributed to ineffective erythropoiesis, a common feature in individuals with megaloblastic anemia. In 29% of the observed cases, signs indicating the etiology of platonychia/koilonychia, which are suggestive of iron deficiency anemia, were present. Additionally, knuckle pigmentation, which is indicative of megaloblastic anemia, was observed in 20% of the patients. During the systemic examination, hememic murmurs were identified in 25 patients, which accounts for 25% of the total sample. According to the study conducted by Kapur D et al, a significant proportion of patients, specifically 76%, exhibited cardiac murmurs.[12] The abdominal examination revealed hepatomegaly as the primary observation in 14 (14%) patients, while palpable splenomegaly was observed in 9 (9%) patients. The palpation of both the liver and spleen was observed in 9 individuals. The study observed that a significant proportion of cases,

specifically 85%, exhibited symptoms of severe anaemia. This phenomenon could be attributed to the fact that individuals tend to overlook mild cases of anemia and refrain from seeking medical attention. One possible contributing factor could be a lack of literacy and knowledge, resulting in individuals presenting at hospitals with severe cases of anemia. Our study did not observe any instances of mild anemia, which is typically managed on an outpatient basis. It is important to note that our study focused exclusively on inpatients. The most prevalent cause of anemia, as determined by examination of peripheral smears and observation of response to therapy, was microcytic hypochromic anemia due to iron deficiency, affecting 45 (45%) of the patients. Udipi SA et al and Milman N et al reported comparable results[16,17], respectively. Subsequently, dimorphic anaemia was identified in 29 (29%) of the patients, ranking as the second most prevalent etiology of anaemia. Therefore, nutritional anemia remains the prevailing cause of anemia in our region.

CONCLUSION

It can be inferred that the World Health Organization and governmental organizations have implemented significant measures to educate and provide medical treatment to individuals regarding the disease and the potential ramifications of untreated cases. Despite these efforts, severe anaemia, with or without failure, remains the prevailing method of presentation for anaemia in the medical department of the hospital.

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