

A study of relationship of clinical findings with laboratory investigations of adult patients with anemia at tertiary health care centre

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Abstract

Background: Anemia is a widespread public health problem associated with an increased risk of morbidity and mortality
Aims and Objectives: Study of relationship of clinical findings with laboratory investigations of adult patients with anemia at tertiary health care centre. **Methodology:** This study was carried out in Krishna Hospital and Medical Research Centre, Karad, Dist: Statara under medicine Department over a period of two years from May 2003 to December 2004. During this period 100 who were admitted for the investigations and treatment of anemia and who fulfilled the required criteria were included in the study. Adult males and females (15-60 yrs), Hemoglobin level less than 10gm% were included into study. All the investigations like USG, X-ray, CBC, Bone marrow, KFT, LFT etc. were done as per the indications. **Result:** In our study we have seen that The majority of the patients were in the age group of i.e. 56-60 were 25 followed by 21-25 were 11, 15-20 and 51-60 were 10, 26-30 and 35-40 were 8, 46-50 were 7. The majority of the patients were with Hb level 2.1 to 4 gm were 35 followed by 4.1-6 were 32, 6.1-8 were 16, 8.1 to 10 were 15. The most common symptoms were Fatigue in 93, followed by Dyspnea in 68, Annorexia and loss of wt in 54, Gastrointestinal symptoms -26, bleeding manifestations in 21, Swelling of face and feet -21. The most common presenting signs were Pallor in 100, followed by Oedema in 21, Koilonychia in 17. Haemic murmur in 15, Tingling/Paraesthesia in 12, Icterus in 8, Stomatitis/Glossitis in 6, Splenomegaly. In 6, Lymphadenopathy in 4, Hepatomegaly in 4, Knuckle pigmentation in 2 The most common type of anemia was Diamorphic-48 followed by Megaloblastic anemia -20 Iron deficiency anemia -16, Leukemia-7, Anemia of chronic disorder -5, Anemia of chronic disorder -5, Idiopathic thrombocytopenic purpura-2
Conclusion: It can be concluded from our study that majority of the patients were in the age group of i.e. 56-60, The most common symptoms were Fatigue, Dyspnea, Annorexia, The most common presenting signs were Pallor, Oedema, Koilonychia.

Key Words: Anemia, Koilonychia, Dimorphic anemia, Etiology of anemia.

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INTRODUCTION

Anemia is a widespread public health problem associated with an increased risk of morbidity and mortality¹. Globally 1.62 billion people are anemic, while among the preschool children the prevalence of anemia is 47.4%. Nutritional anemia in South Asia accounts for nearly half of global cases of anemia. In India, anemia continues to be the major health problem in young children, adolescent girls, and pregnant women. Approximately 50% of the population suffers from nutritional anemia as known in countries where meat consumption is low². The anemia of chronic disease occurs in the setting of persistent systemic inflammation and is associated with low serum

iron, reduced total iron-binding capacity, and abundant stored iron in tissue macrophages³. According to the World Health Organization (WHO), anemia is defined as a condition in which the hemoglobin content is below normal. This situation occurs because of different pathophysiological mechanisms. Anemia exists if haemoglobin or packed cell volume (PCV) level is below the lower limit of normal for the particular age and sex. There are many classifications of anemia. One is based on underlying mechanism and second is clinically useful approach classifies anemia according to alterations in red cell morphology, which often point to particular causes. Morphologic characteristics providing etiologic clues include red cell size (normocytic, microcytic, or macrocytic); degree of hemoglobinization, reflected in the color of red cells (normochromic or hypochromic); and shape. In general, microcytic hypochromic anemias are caused by disorders of hemoglobin synthesis (most often iron deficiency), while macrocytic anemias often stem from abnormalities that impair the maturation of erythroid precursors in the bone marrow³. The most prevalent types of anemia are due to nutritional deficiencies (malnutrition and iron, vitamin B12 and folic acid deficiencies) and chronic diseases (such as cancer, kidney disease and congestive heart failure)⁴⁻⁶. According to the World Health Organization (WHO), there are two billion people with anemia in the world and half of the anemia is due to iron deficiency⁷. Whatever its cause, when sufficiently severe, anemia leads to certain clinical findings. Patients appear pale. Weakness, malaise, and easy fatigability are common complaints. The lowered oxygen content of the circulating blood leads to dyspnea on mild exertion. Hypoxia can cause fatty change in the liver, myocardium, and kidney³

MATERIAL AND METHODS

This study was carried out in Krishna Hospital and Medical Research Centre, Karad, Dist: Statara under medicine Department over a period of two years from May 2003 to December 2004. During this period 100 who were admitted for the investigations and treatment of anemia and who fulfilled the required criteria were included in the study. Adult males and females (15-60 yrs), Hemoglobin level less than 10gm% were included into study while age less than 15 yrs and more than 60 yrs, patients with acute illness like sepsis and terminally ill patients, morbid patients and patients not willing for investigations were excluded from the study. All the investigations like USG, X-ray, CBC, Bone marrow, KFT, LFT etc. were done as per the indications.

RESULT

Table 1: Age and Sex Incidence

Age groups (Yrs.)	No. of Cases		Total
	Male	Female	
15-20	4	6	10
21-25	5	6	11
26-30	4	4	8
31-35	4	5	9
35-40	6	2	8
41-45	3	7	10
46-50	7	2	7
51-55	7	3	10
56-60	16	9	25
Total	56	44	100

The majority of the patients were in the age group of i.e. 56-60 were 25 followed by 21-25 were 11, 15-20 and 51-60 were 10, 26-30 and 35-40 were 8, 46-50 were 7.

Table 2: Showing No. of cases with Hemoglobin Level

Percentage of Hb in gm %	No. of cases
Up to 2	2
2.1 -4	35
4.1-6	32
6.1-8	16
8.1-10	15

The majority of the patients were with Hb level 2.1 to 4 gm were 35 followed by 4.1-6 were 32, 6.1-8 were 16, 8.1 to 10 were 15.

Table 3: Presenting Symptoms

Symptoms	No. of cases
Fatigue	93
Dyspnea	68
Annorexia, loss of wt	54
Gastrointestinal symptoms	26
Bleeding manifestation	9
a) Per rectum	4
b) Per vaginum	1
c) Hemoptysis	2
d) Per nose	2
Swelling of face and feet	21

The most common symptoms were Fatigue in 93, followed by Dyspnea in 68, Annorexia and loss of wt in 54, Gastrointestinal symptoms -26, bleeding manifestations in 21, Swelling of face and feet -21.

Table 4: Presenting signs

Signs	No. of cases
Pallor	100
Oedema	21
Koilonychia	17
Haemic murmur	15
Tingling/Paraesthesia	12
Icterus	8
Stomatitis/Glossitis	6
Splenomegaly	6
Lymphadenopathy	4
Hepatomegaly	4
Knuckle pigmentation	2

The most common presenting signs were Pallor in 100, followed by Oedema in 21, Koilonychia in 17 Haemic murmur in 15, Tingling/Paraesthesia in 12, Icterus in 8, Stomatitis/Glossitis in 6, Splenomegaly In 6, Lymphadenopathy in 4, Hepatomegaly in 4, Knuckle pigmentation in 2.

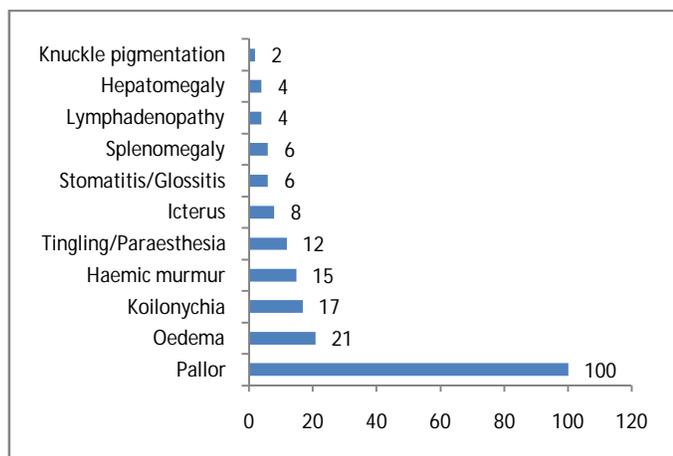


Figure 1: Presenting Signs

Table 5: Types of Anemia

Type	Percentage
Diamorphic	48
Megaloblastic anemia	20
Iron deficiency anemia	16
Leukemia	7
Anemia of chronic disorder	5
Multiple myeloma	1
Hypoplastic anemia	1
Idiopathic thrombocytopenic purpura	2

The most common type of anemia was Diamorphic-48 followed by Megaloblastic anemia -20 Iron deficiency anemia -16, Leukemia-7, Anemia of chronic disorder -5, Anemia of chronic disorder 5, Idiopathic thrombocytopenic purpura -2

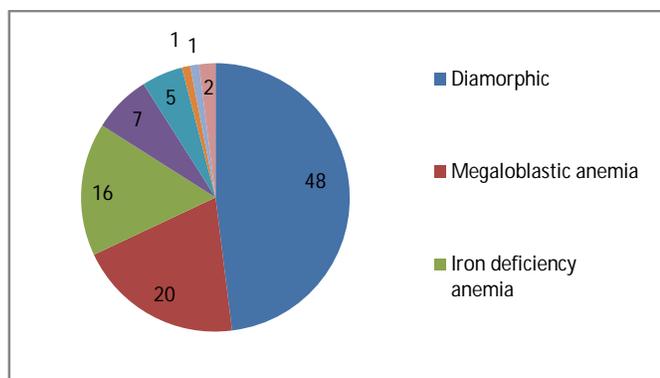


Figure 2: Types of Anemia

DISCUSSION

Anemia is the most common blood disorder, affecting about a third of the global population.^{8,9} Iron-deficiency anemia affects nearly 1 billion people.¹⁰ In 2013, anemia due to iron deficiency resulted in about 183,000 deaths – down from 213,000 deaths in 1990.¹⁰ It is more common in women than men,¹⁰ during pregnancy, and in children and the elderly.⁸ Anemia increases costs of medical care and lowers a person's productivity through a decreased ability to work.¹¹ The name is derived from Ancient Greek: ἀναμία anaimia, meaning "lack of blood", from ἀν- an-, "not" and αἷμα haima, "blood".¹² The three main types of anemia are due to blood loss, decreased red blood cell production, and increased red blood cell breakdown.⁸ Causes of blood loss include trauma and gastrointestinal bleeding, among others.^[1] Causes of decreased production include iron deficiency, a lack of vitamin B12, thalassemia, and a number of neoplasms of the bone marrow.⁸ Causes of increased breakdown include a number of genetic conditions such as sickle cell anemia, infections like malaria, and certain autoimmune diseases.⁸ It can also be classified based on the size of red blood cells and amount of hemoglobin in each cell.^[1] If the cells are small, it is microcytic anemia.¹ If they are large, it is macrocytic anemia while if they are normal sized, it is normocytic anemia.⁸ Diagnosis in men is based on a hemoglobin of less than 130 to 140 g/L (13 to 14 g/dL), while in women, it must be less than 120 to 130 g/L (12 to 13 g/dL).^{8,11} Further testing is then required to determine the cause. In our study we have seen that The majority of the patients were in the age group of i.e. 56-60 were 25 followed by 21-25 were 11, 15-20 and 51-60 were 10, 26-30 and 35-40 were 8, 46-50 were 7. The majority of the patients were with Hb level 2.1 to 4 gm were 35 followed by 4.1-6 were 32, 6.1-8 were 16, 8.1 to 10 were 15. The most common symptoms were Fatigue in 93, followed by Dyspnea in 68, Anorexia and loss of wt in 54, Gastrointestinal symptoms -26, bleeding manifestations in 21, Swelling of face and feet -21 The most common presenting signs were Pallor in 100, followed by Oedema in 21, Koilonychia in 17. Haemic murmur in 15, Tingling/Paraesthesia in 12, Icterus in 8, Stomatitis/Glossitis in 6, Splenomegaly. In 6, Lymphadenopathy in 4, Hepatomegaly in 4, Knuckle pigmentation in 2. The most common type of anemia was Diamorphic -48 followed by Megaloblastic anemia -20. Iron deficiency anemia -16, Leukemia-7, Anemia of chronic disorder -5, Anemia of chronic disorder -5, Idiopathic thrombocytopenic purpura -2. This was similar to Milind Chandurkar¹³ they found out of 200 cases the maximum no of cases seen in >40 yrs were 128 (64%). The most frequent symptom was easy fatigability which

was present in 190 (80%) of patients followed by breathlessness in 132 (76%) and the signs noted were Pallor in 188 (94%), Venous hum in 88 (44%), Pedal edema in 80(40%), signs of Heart failure in 80 (40%). The most common type of anemia seen of Peripheral blood smear was Microcytic hypochromic in 84 (42%) followed by Dimorphic in 54 (27%). The proportion of Platyonychia was highly significant than Koilonychias in all types of anemia.

CONCLUSION

It can be concluded from our study that majority of the patients were in the age group of i.e. 56-60, The most common symptoms were Fatigue, Dyspnea, Anorexia, The most common presenting signs were Pallor, Oedema, Koilonychia.

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