TYPES OF ANEMIA IN PATIENTS WITH HEMOGLOBIN LESS THAN 10g/dl

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ABSTRACT

Objective: To find out different types of anemia in patients with hemoglobin less than 10 g/dl in relation to age and sex in Rawalpindi region.

Design: A descriptive study.

Place and Duration of Study: This study was carried at Military Hospital Rawalpindi and Armed Forces Institute of Pathology Rawalpindi from February 1997 to March 1998.

Patients and Methods: Patients above 12 years of age from both sexes with hemoglobin less than 10g/dl were randomly selected for the study. Patients suffering from other hematological diseases such as leukemia, myeloproliferative / lymphoproliferative disorders were excluded. Total 208 anemic patients were included in the study. History and physical findings were recorded. Laboratory investigations such as blood complete counts, red blood cells morphology, bone marrow examination and other relevant investigations where indicated for diagnosis were carried out.

Results: Iron deficiency anemia was found to be the most common type (n= 68, 32.69%) of anemia. In 12-45 years age group, iron deficiency anemia was found in 54 (35.29%) cases, followed by megaloblastic anemia in 23 (15.03%) cases. In age group 46 years and above, megaloblastic anemia was found in 16 (29.09%) cases followed by iron deficiency anemia in 14 (25.45%) cases.

Conclusion: Nutritional anemias are the most common types of anemia in our population. Iron deficiency is the commonest type present in females of reproductive age. Megaloblastic anemia was the commonest types of anemia in individuals of either sex over 46 years of age.

Keywords: Anemia, iron deficiency anemia, nutritional anemia

INTRODUCTION

Anemia is a disorder in which the blood hemoglobin level is below the lower extreme of the normal range for the age and sex of the individual [1]. This results in reduction of oxygen carrying capacity of blood usually due to a reduction below normal limits of the total circulatory red cell mass. Anemia is a very common problem in our country. It affects almost all ages and both sexes. It is especially common in females and lower socio-economic group. Pakistan is a developing country and literacy rate is low as compared to many other developing countries. People are still ignorant about the specific dietary requirement. This results in inability of the erythropoietic tissue to maintain a normal hemoglobin concentration

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on account of an inadequate supply of one or more nutrient. Parasitic infections and poor bioavailability of iron contribute to high prevalence of iron deficiency [2]. The purpose of the study was to find out the different types of anemia in patients with hemoglobin less than 10 g/dl with more than 12 years of age in relation to age and sex.

PATIENTS AND METHODS

This descriptive study was conducted at Military Hospital Rawalpindi and Armed Forces Institute of Pathology Rawalpindi. Patients above 12 years of age from both sexes with hemoglobin less than 10 g/dl were included because only moderate to severe anemic patients are usually referred to specialists in Military Hospital Rawalpindi. After exclusion of patients suffering from other hematological disorder such as acute leukemia, chronic leukemia, lympho-proliferative disorders, multiple myloma, 208 anemic patients were included. A brief clinical history and examination was recorded. Blood sample was drawn to find out hemoglobin, total red blood cells count, white blood cells count, platelet count, differential leukocyte count and absolute values by Technician H-1 hematology analyzer in all patients.

Patients with hemoglobin less than 10g/dl were selected without other hema-tological disorder for further investigation to find out the type of anemia. Bone marrow examination, Hemoglobin electrophoresis, serum B_{12} levels, folate assays, demonstration of hemosiderin, urobilinogen and urobilin in urine, glucose-6-phosphate dehydrogenase levels and osmotic fragility test was performed by standard methods were indicated. Data has been analyzed using SPSS version 10.0. Percentages were used to describe the data.

RESULTS

In this study 208 anemic patients were included in which 118 (57%) were males and 90 (43%) were females. Iron deficiency anemia was found in 68 (32.69%) patients followed by megaloblastic anemia in 39 (18.75%) patients, mixed deficiency anemia in 28 (13.46%) patients, hemolytic anemia in 28 (13.46%) patients, aplastic anemia in 25 (12.02%) patients and anemia of chronic disorder in 20 (9.62%) patients. Distributions of different types of anemia are shown in (table-1). In 12-45 years age group iron deficiency anemia was found in 54 (35.29%) patients, megaloblastic anemia in 23 (15.03%) patients, mixed deficiency anemia in 23 (15.03%) patients, hemolytic anemia in 22 (14.38%) patients, aplastic anemia in 19 (12.42%) patients and anemia of chronic disorder in 12 (7.84%) patients as shown in (table-2). In 46 years and above age group megaloblastic anemia was found in 16 (29.09%) patients, iron deficiency anemia in 14 (25.45%) patients, anemia of chronic disorder in 8 (14.55%) patients, hemolytic anemia in 6 (10.91%) patients, aplastic anemia in 6 (10.91%) patients and mixed deficiency anemia in 5 (9.09%) patients. In males iron deficiency anemia was found in 33 (27.97%) patients, megaloblastic anemia in 29 (24.58%) patients, hemolytic anemia in 16 (13.56%) patients, mixed deficiency anemia in 15 (12.71%) patients, aplastic anemia in 15 (12.71%) patients and anemia of chronic disorder in 10 (8.47%) patients as shown in (table-3). In females iron deficiency anemia was found in 35 (33.89%) patients mixed deficiency anemia in 13 (14.44%) patients, hemolytic anemia in 12 (13.33%) patients, megaloblastic anemia in 10 (11.11%) patients, aplastic anemia in 10 (11.11%) patients and anemia of chronic disorder in 10 (11.11%) patients.

DISCUSSION

Anemia is recognized as a major public health problem, affecting over 1.2 billion people in both the developed and developing countries [4]. Compilations of the prevalence of anaemia worldwide show a large variation among regions. Although the prevalence is highest in developing countries but it is also common in industrialized countries [5]. In

Pakistan, anaemia is considered to be one of the major public health problems.

This article focuses on the etiology of anemia in relation to age and sex and reviews its trend in Rawalpindi region and adjoining area. Two age groups were formulated i.e. 12-45 years and 46 years and above, keeping in view having different causes of anemia for these age groups. Definition of anemia is hemoglobin less than 11.5g/dl and 13.5 g/dl in females and males respectively [6]. Mild anemic patients are usually treated by the general physicians with haematanics. We have found different percentages of common types of anemia in our study as compared to other studies because anemic patients with Hb less than 10 g/dl were included in this study. In our study iron deficiency anemia (32.69%) was most common followed by megaloblastic anemia (18.75%), and mixed deficiency anemia (13.46%) irrespective of age and sex. Nutritional anemias were followed by hemolytic, aplastic and anemia of chronic disorder. In a study at Ecuador Brazil, iron deficiency was most common followed by hemolytic and megaloblastic anemia [7].

It has been estimated that 20% of the world population is iron deficient [8], and it occurs at all ages and both sexes but is especially common in women of child bearing age. In our study iron deficiency anemia was present in 29 (42.03%) out of 69 females in 12 to 45 years age group. A study was conducted at Karachi with Hb less than 10g/dl on 318 pregnant women's showed 63.5% iron deficiency anemia, while other anemias were evenly distributed [9]. In our study megaloblastic anemia was present in 18.75% anemic patients and it was most common type (29.09%) in patients of 46 years and above age group. Qaisar Hasnain reported megaloblastic anemia in 10% of anemic patients in his study out of which 61.81% were males and 38.18% were females [10]. It is more common in elderly and has been suggested that ageing process might be an intrinsic factor in the development of this type

Table-1: Distribution of common types of anemia with Hb less than 10g/dl.

Types of anemia	No. of cases	%
Iron deficiency anemia	68	32.69
Megaloblastic anemia	39	18.75
Mixed deficiency anemia	28	13.46
Haemolytic anemia	28	13.46
Aplastic anemia	25	12.02
Anemia of chronic disease	20	9.62
Total	208	100

Table-2: Distribution of anemia's in relation to age (n=208).

Types of anemia	12 – 45 years		46 years & above	
	No. of cases	%	No. of cases	%
Iron deficiency anemia	54	35.29	14	25.45
Megaloblastic anemia	23	15.03	16	29.09
Mixed deficiency anemia	23	15.03	5	9.09
Haemolytic anemia	22	14.38	6	10.09
Aplastic anemia	19	12.42	6	10.09
Anemia of chronic disease	12	7.84	8	14.55
Total	153	100	55	100

Table-3: Distribution of anemia's in relation to sex (n=208).

Types of anemia	Male cases	%	Female cases	%
Iron deficiency anemia	33	27.97	35	38.89
Megaloblastic anemia	29	24.58	10	11.11
Mixed deficiency anemia	15	12.71	13	14.14
Haemolytic anemia	16	13.56	12	13.33
Aplastic anemia	15	12.71	10	11.11
Anemia of chronic disease	10	8.47	10	11.11
Total	118	100	90	100

of anemia [11,12]. Mixed deficiency anemia (13.46%) was the next type of nutritional anemia being observed. It was common in males and females of 12-45 years age group. This type of anemia was generally not reported in other studies. It is probably due to

indiscriminate use of multivitamin preparations by general practitioners without proper investigations. Hemolytic anemia was more observed in 12-45 years age group in both males and females. Aplastic anemia was commonly seen in male patients of 12-45 years age group. In females equal number of patients were found in younger and older age groups .In Asia more than 60% of patients with aplastic anemia are less than 30 years of age whereas in the West most patients are older than 60 years [13]. Anemia of chronic disorder was the least common type of anemia in our study. Although it was common in 12-45 years age group but in male patients it was evenly distributed in younger and older age group where as it affected more females in younger age group.

CONCLUSION

Nutritional anemias are the most common types of anemia in our population. Iron deficiency is the commonest type present in females of reproductive age. Megaloblastic anemia was the commonest types of anemia in individuals of either sex over 46 years of age.

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