Frequency of Anaemia in Patients in Akhtar Saeed Trust Hospital

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ABSTRACT

To determine the incidence of anaemia in all the patients who visited the outpatient department and were admitted in wards in Akhtar Saeed Trust Hospital (ASTH) in Lahore, Pakistan and find the frequency of different grades of anemia in male and female patients.

Methodology: This is a retrospective study conducted in Department of Pathology, ASTH, Lahore. A total of 10,025 (Ten thousand and twenty five) CBC reports were studied intricately which were carried out in the laboratory from October 2015 to August 2016. According to the principle of simple random sampling, individuals from a data of a total of 3289 men and 6736 women were chosen. Haemoglobin less than 13gram/dL in men and 12 gram/dL in women was considered as anaemic.

Results: Out of total of 10,025 patients, 38.8% (n =3830)had normal haemoglobin levels and 61.7% (n=6195) were anaemic. There were total of 3289 males and 6736 females. Among those 3289 males, 1447(44%) were normal and 1842(56%) were anaemic. In females, among a total of 6736,2383 (35%) were normal and 4353(65%) were anaemic. Mean haemoglobin level was 11.36+2.2214g/dL in females and 12.22+2.5321 g/dL in males. Mild anemia was found to be more common in both male and female patients. Moderate anaemia was more common in females (18.02%) than males (12.56%).Severe anaemia is almost the same in male (6.6%) and female (6.3%) patients.

Conclusion: Frequency of anaemia was high in patients presenting to the indoor and outdoor patient department in Akhtar Saeed Trust Teaching Hospital Lahore .The frequency of anaemia was higher in female patients as compared to the male patients. Even after excluding the two high risk groups, i.e., pregnant females and infants from the data, high frequency rate of anaemia is alarming.

Keywords: Anaemia, haemoglobin level, CBC

INTRODUCTION

Anaemiais defined as a condition in which the capacity of blood to carry oxygen is reduced, which usually originates from a reduction in the haematocrit to levels just below normal. According to an estimate of World Health Organization (WHO), around two billion of the population of the whole world is found to be anemic[1].

Anaemia is considered to be a ponderous health issue all across the world with outcomes effecting the health of individuals and, consequently, their socio-economic status as well[2]. Its omnipresence in the emergent nations is a well-known fact. Taking notice of that, WHO also studied manifold complications of anaemia, most evidently, the adverse effects of anaemia in pregnant women that may cause complications in both the mother and child[3].

The occurrence of anaemia is associated with a plethora of factors. Nutritional insufficiency is, undoubtedly, the chief cause, which refers to scanty stock of a one, more than one or a variety of nutrients

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required for the genesis of haemoglobin. The three main minerals linked to the causality of nutritional type of anaemia are iron, folic acid and vitamin-B12[4,5]. Among all of these, iron deficiency is the most common form of anemia and as per the estimates of WHO, approximately 20 to 30% of non-gravid women and around 50 to 60% of children in economically developing nations are diagnosed to be anaemic[5]. Other conditions associated with causation of anaemia are anemia of chronic disease, genetically acquired anomalies or deficiency of RBC membrane binding proteins that cause hemolysis, diseases that occur due to bone marrow suppression, red blood cell production abnormalities ,infections, infestation by worms, chronic diseases, blood loss etc. These causes differ in varied ranges of age groups[6].

The WHO also laid down classification of countries with respect to the level of public health significance of anemia; prevalence of 15% is low,15-40% is medium and more than 40% is high[7]. Many studies has been conducted in Pakistan which have been reported the prevalence of anemia in pregnant females, children and other segments of the population[8]. According to WHO estimates for Pakistani population, non-pregnant women aged 15 - 49 years, 51% had blood concentration of

haemoglobin less than 12gram/dL and overall mean blood concentration of haemoglobin was 11.7gram/dL .In pregnant Pakistani women aged 15-49 years, 50% had haemoglobin concentration of less than 11g/dl and overall mean blood haemoglobin concentration was 10.9gram/dL.A great deal of investigative work has been carried out by a horde of researchers with respect to the widespread existence of anaemia and there is ampledata present that supports the existence of anaemia in abundance in the Pakistani population in either of the sexes.

Study Outline and Setting: An institution-based, ex-post facto (retrospective) study was conducted in the department of Pathology, Akhtar Saeed Trust Hospital (ASTH), Lahore. ASTH is 300-bedded teaching hospital and is attached with Akhtar Saeed Medical and Dental College, Lahore. ASTH receives patients from DHA-EME housing society and surrounding colonies/villages, namely Chung, Shahpur, Mohlanwal and others.

Study Sample and Collection of Data: The inclusion criteria comprises of complete blood count, reports of those patients who visited the out-patient department and were admitted in wards of ASTH, Lahore from October,2015 to August,2016 with the symptoms of anaemia. The reports of the patients who presented to the OPD and admitted in different wards (pregnant women and Paediatrics department and Paediatric OPD patients are not considered to be a part of the research). Haemoglobin (Hb), white blood cells (WBCs) and platelets counts were determined by using Haematology analyzer, Sysmex Kx-21.10,025 reports in total were reviewed and studied. The principle chosen to collect and record the data was simple random sampling.

The reference ranges for haemoglobin concentration categories used in this study were in accordance with the levels that are WHO recommended. Haemoglobin levels that surpassed the value of 13 gram/dL and 12g/dL were considered as normal for men and women, respectively. Any patient having Hb level below the previously mentioned values was considered to be a diagnosed case of anaemia. Haemoglobin levels that varied from 10 to 12.9gram/dL for and from 10 to 11.9gram/dL were categorized under mild anaemia for males and females,respectively.For either of the sexes,Hb levels varying from 8 to 9.9gram/dL were categorized under moderate anaemia and a Hb level beneath the value of 8gram/dL was considered to be severely anaemic.

RESULTS

The total number of patients estimated to an exact amount of 10,025 and among them, 3289 were males, and, 6736 were females. Among total, 38.3% were normal and 61.7% were anaemic. In the male population, among total males (n=3289), 44% (n=1447) were normal, mild anaemia was seen in 36.85% (n=1212), moderate in 12.56% (n=413) whereas 6.60% (n=217) had severe anaemia. In female population, 35.38% (n=2383) were normal, 40.34% (n=2717) were suffering from mild anaemia. Moderate anaemia was seen in 18.02% (n=1214), whereas 6.26% (n=422)females were suffering from severe anaemia.

In our study the number of female patients was greater than that of the male patients. Normal haemoglobin levels were more common in males (44%) as compared to females(35%).Mild anemia was found to be more common in females (40.34%) than males (36.85%).The percentage of moderate anemia was 18.02% in females and 12.56% in males which again shows the higher trend of anaemia in females while severe anemia found to be almost same in males(6.6%) and females(6.26%) (Fig.1) below shows the comparison of various types of anaemia in both sexes.

	No. of females	%age
Normal	2383	35.38%
Mild anemia	2717	40.34%
Moderate anemia	1214	18.02%
Severe anemia	422	6.26%
Total female	6736	100%

	No. of males	%age
Normal	1447	44
Mild anemia	1212	36.85%
Moderate anemia	413	12.56%
Severe anemia	217	6.60%
Total male	3289	100%

	Male	Female
Normal	35.8%	44%
Mild anemia	40.34%	36.85%
Moderate anemia	18.02%	12.56%
Severe anemia	6.26%	6.60%

Fig. 1:
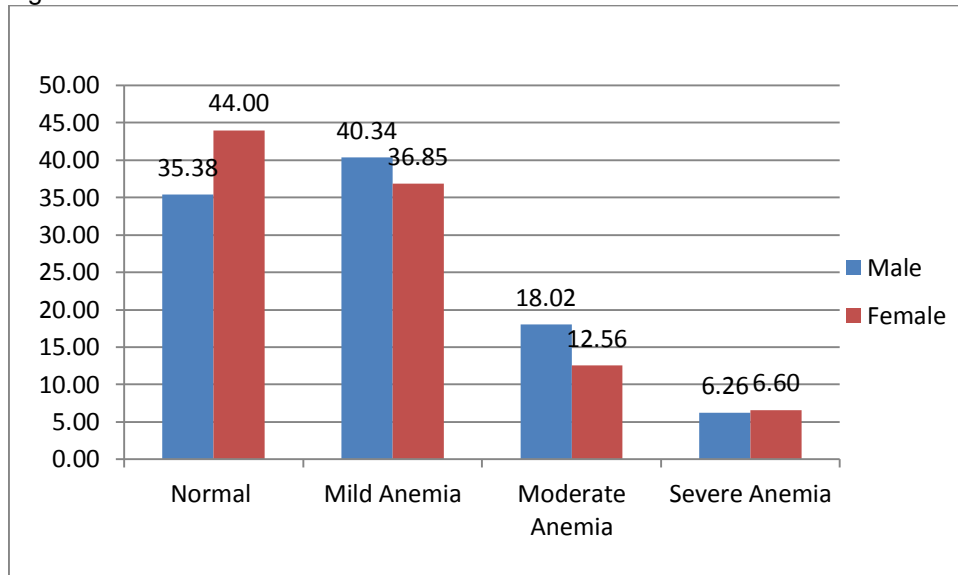
DISCUSSION

The incidence of anaemia is really high in Pakistan, and its widespread presence in children and pregnant women has many a times been mentioned by WHO in a variety of their research projects. Not only WHO, but many research papers have been published locally as well to support the extensive presence of anaemia. In the present study, we found that more female population visited the hospital and found high frequency of anemia in both male and female population when we compared the information we collected with the information we had in the available literature.

According to an estimate of National Health Survey of Pakistan (NHSP),the widespread presence of anaemia varied from 12-28% in the Pakistani population of males, depending upon the diversity in socioeconomic footing of people dwelling in different areas whereas anaemia in women of child-bearing age varied from 38-51.5%. The incidence of occurrence of anaemia, according to our study, was found to be 56% in and 64.6% in men and women, respectively. This high rate of incidence can be because of the fact that all the patients either presented to the hospital with symptoms of some other disease, routine check-up or they were admitted previously in the hospital ward .Anaemia is frequently diagnosed in the hospitalized patients[12]. Anaemia is effecting 30% to 90% of hospitalized patients[14]. The reason behind such a high rate of anaemia in hospitalized patients and patients visiting in OPD can be due to use of certain drugs like certain antibiotics such as cephalosporins and some chemotherapeutic drugs, in such cases haemoglobin level should be monitored regularly[14,15].

Anaemia is more common in children and pregnant women who are not included in our study and even the anaemia seems to be quite common in both male and female population who visited our hospital[11].

Iron deficiency anaemia is most common cause of anaemia[1,2,3]. Fortification of food products with iron has been used to prevent the incidence of anaemia with different results depending upon the type of fortification. Assuncao et al have reported that there was no increase in haemoglobin levels after consuming wheat fortified with iron. This can be attributed to the presence of phytins, which are calcium-magnesium salt compounds found in wheat that reduce the absorption of iron and results in no increase in the levels of haemoglobin[12,13]. Baig et al conducted a study in which it was reported that the rate of incidence of anaemia was 90.5% (the cut-off value for Hb was less than 11gram/dL) in 1369 pregnant women who came to the antenatal clinic with their complaints.

In our study, reports from antenatal clinic were excluded and the female population that presented to the hospital was non-pregnant and patients admitted in the gynaecology ward were also included. The higher rate of occurrence of anaemia in the population of women in this study is not only limited to the pregnant women, who are, undoubtedly, at the greater risk of developing anaemia,but the overall population of females is suffering from anaemia[12,13].

Iron supplements should be prescribed to women suffering from anaemia to prevent the complications during and after pregnancy and in the

later stage of life[3,5]. Male population, both who visited and the ones who were admitted, showed increase incidence of anaemia .As compared to the female population less males visited the hospital.56% of the males had anaemia while 44% had normal haemoglobin levels who visited the hospital[2,3]. High frequency of anaemia in female population shows that not only pregnant women are suffering from anaemia but non pregnant women also have a high incidence of anaemia[4,5]. These results are the same as the study conducted by Shahab F et al.

There are a multitude of restrictions for carrying out this study because this study, in contrast to the one mentioned before, is completely hospital-based and it solely comprised of the reports of the patients who were advised CBC (complete blood counts) investigations. In our study, there is no correlation of age of the patient with the complaints he/she presented with, clinical picture, socio-economic status, eating habits of the patient or any history of blood loss or blood transfusion.

CONCLUSION

After the completion of our study, we came to a conclusion that there is high incidence of anaemia in the patients presenting to Akhtar Saeed Trust Hospital, Lahore. The rate of occurrence was high in both male and female patients, despite the exclusion of high risk individuals, which included expectant mothers and children. A higher rate of prevalence of anaemia is worth pondering as it is a frightening trend, therefore, effective measures must be taken to stop the spread this problem which affects the public health. Furthermore, a community-based research on a massive level should be devised to look into the prevalence of anaemia in the society in order to achieve a healthy, anaemia-free population.

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