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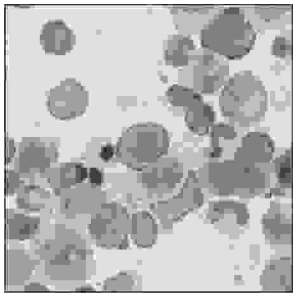
ANEMIA IN POSTNATAL PATIENTS;

DETERMINANTS OF SEVERITY AND TYPE AT RAWALPINDI GENERAL HOSPITAL (RGH)



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ABSTRACT... Objective: To determine the severity and the type of anemia in the postnatal patients admitted at RGH. **Study Period:** June 2006 - December 2006. **Study Design:** A descriptive observational study. **Material & Methods:** 160 female patients with anemia were clinically evaluated to establish the relationship between severity/type of anemia with the socioeconomic status, age, parity and the past obstetric history. **Results:** Among 160 cases of anemia, the iron deficiency anemia was the most common (87.5%), β thalassaemia trait was in 3% of the cases. 47.5% of women were between 25-30 years of age. 83.7% of them belonged to the lower socioeconomic class. 52.5% of patients were multigravida. 67.5% of patients had moderate anemia. **Conclusion:** The present study concludes that the iron deficiency anemia of moderate severity is the most prevalent anemia in our lower socioeconomic class.

INTRODUCTION

Anemia is the most common disorder in pregnancy among women residing in different parts of the world. It has a varied prevalence, etiology and the degree of severity among population of different countries but the majority of anemic patients belonged to the underdeveloped countries[1]. Iron deficiency anemia is the commonest nutritional deficiency in the pregnant women of underdeveloped non-industrial countries followed by folate deficiency anemia. Anemia is responsible for 40-60% of maternal deaths in non-industrialized countries[2,3]. In pre-menopausal women, the most common causes of iron deficiency anemia are menstrual blood loss and pregnancy. During pregnancy, anemia can lead to infections, preterm labor and intra uterine growth restriction[4,5,6]. Iron deficiency anemia during infancy and early childhood has been associated with abnormal infant behavior, growth and development although it is unclear how much of this association is actually attributable to other factors associated with the iron deficiency (e.g. poor nutrition, low socioeconomic status). Iron deficiency anemia can lead to developmental delay,

impaired behavior, diminished intellectual performance and decreased resistance to infections[7,8].

A women of the reproductive age group loses 10-15 mg of iron during an average menstrual cycle and requires approximately 2 mg iron to replenish the loss. Moreover, the pregnancy adds stress to the iron balance. The iron requirements in pregnancy are approximately 900 mg[9]. These requirements are met only by maximizing dietary iron abortion and mobilizing iron stores[10,11]. For many women in underdeveloped countries, where the diet have low iron bio-availability, sufficient iron can not be supplied by the diet alone and if a woman enters into a pregnancy with depleted iron stores then she is prone to have iron deficiency anemia[12].

Anemia is defined by the presence of a hemoglobin level that is lower than the threshold of two standard deviations below the median value for a healthy matched population[12]. The WHO defines anemia in pregnancy as a hemoglobin concentration below 11g/dl[13] and the cut off suggested by the United States centre for disease control is 10.5g/dl[14]. A hemoglobin level significantly less than what is considered normal for pregnancy has been associated with the increased risk of low birth weight, preterm delivery and perinatal mortality[4,6].

The hemoglobin concentration can be used to screen for iron deficiency. It is cost effective and can be easily done by trained technician but is non specific[15]. Peripheral film is another beside indicator for the diagnosis of anemia which differentiates between iron deficiency anemia, megaloblastic anemia and hemolytic anemia. Serum ferritin concentration can be utilized to confirm iron deficiency and gives better information of the stored iron. It has best sensitivity and specificity for diagnosis of iron deficiency in the anemic patients[16], however, its concentration can be elevated in patients with infections, inflammatory and neoplastic conditions. Hemoglobin and the ferritin level estimations have been used clinically to categorize the patients into normal and abnormal for iron stores[17]. Treating iron deficiency without anemia is controversial. The treatment of nutritional iron deficiency anemia includes adequate dietary intake and the iron supplementation[3,10].

Various studies have been carried out on the causes of anemia. The purpose of our study was to determine the severity and the type of anemia in postnatal patients of RGH and to suggest certain recommendations for its prevention within our limited resources.

AIMS AND OBJECTIVES

The present study was undertaken to record the type/severity of anemia among patients and their relation ro the socioeconomic status, age, parity and the past obstetric history for better understanding of the problem in current antenatal care.

MATERIALS AND METHODS

The study was carried out at Rawalpindi General Hospital (Tertiary care centre) during the period of June 2006 - December 2006. A detailed statistical performa containing the relevant parameters (age, socioeconomic status, parity and past obstetrics history) was designed and the data about the patients was collected to analyze the obtained information about anemic patients and then relate it to its type and severity. The socioeconomic status of families was based on the occupation, monthly income and family size. Based on these variables patients were categorized into three classes: lower (Rs 2,000-5,000/month), lower middle (Rs 5,000 - 10,000/month) and middle classes (> Rs 10, 000/month). The complete picture of the blood was obtained and patients were classified into four categories according to the unpublished data of the Indian Council of Medical Research (ICMR)[19]. The four categories are: mild anemia (Hb 10 - 10.9g/dl), moderate anemia (Hb 7-10g/dl), severe anemia (Hb < 7g/dl) and very severe anemia (Hb < 4g/dl). We also performed serum ferritin and hemoglobin electrophoresis.

RESULTS

During the period of seven months 160 patients of anemia were diagnosed. The results obtained from the extensive study are cataloged in tables I to VIII.

Table-I. This table shows that the most common victims of anemia are between 25-30 years of age (47.5%), probably the reason being that this is the peak of reproductive age in our population

Age	20-25years	25-30 years	30-35 years
Patients	40	76	44
Percentage	25	47.5%	27.5%

Table-II. This table shows that anemia was much more common in lower socioeconomic class (83.7%), least common in middle class (1%). It reflects the poor nutritional status of women before entering into pregnancy more over to face the stress of pregnancy such patients can not manage to take the diet with good nutritional value or supplements.

Socioeconomic status	Lower (Rs. 2,000-5,000/month)	Lower Middle (Rs. 5,000-10,000/month)	Middle (> Rs. 10,000/month)
Patients	134	76	02
Percentage	83.7%	15%	1.25%

Table-III. This table shows the relationship of parity with anemia being commonest in multigravida (52.5%), least common in primigravida (21.25%). Reason being that the majority of the patients in our postnatal ward belonged to multigravida group. It shows the average family size in our population is between 2-5 children. It also shows decrease spacing and prolonged periods of lactation leading to iron deficient states.

Parity	Primigravida	Multigravida (2-5)	Grand multigravida (>5)
Patients	34	84	42
Percentage	21.25%	52.5%	26.25%

DISCUSSION

Worldwide anemia is the most common medical disorder[1]. The overall prevalence of anemia is estimated to be about 40% of the world's population. Anemia effects about 18% of women during pregnancy in developed countries while in underdeveloped countries prevalence varies between 35-75% with the average being 56%[18]. In our study iron deficiency anemia was found in 87.5% patients and in 67.5% of patients it was of moderate severity.

Table-IV. This table shows the relation of the past obstetric history with anemia. 2.5% of the patients had past history of antepartum haemorrhage (APH), 6.25% of the patients had history of postpartum heamorrhage (PPH). Only 1.25% of the patients had past history of multiple pregnancies and 5% had present history of multiple pregnancies. Therefore, these factors of obstetric history are not the main determinants of anemia in our population.

Presence of positive history	Yes	Yes
Past history of APH	4 (2.5%)	156 (97.5%)
Past history of PPh	10 (6.25%)	150 (93.75%)
Past history of multiple pregnancy	2 (1.25%)	155 (98.75%)
Present history of multiple pregnancy	8 (5%)	!52 (95%)

Table-V. This table shows that moderate anemia was the most common (67.5%) and mild being the least common (1.25%).

Hb gm/dl (ICMR unpublished data)	Mild (10.0-10.9)	Moderate (7.0 - 10.0)	Severe (<7.0)	Very Severe (<4.0)
Patients (%age)	2 (1.25%)	108 (67.5%)	40 (25%)	10 (6.25%)

Table-VI. This table shows that anemia was of microcytic hypochromic in 87.5% of the patients and normocytic normochromic in 10% of the patients.

Peripheral film	Normocytic Normochromic	Microcytic Hypochromic
Patients (%age)	20 (12.5%)	140 (87.5%)

Table-VII. This table shows that serum ferritin was low in 22% of the patients showing decreased iron stores.

Serum Ferritin	Normal	Abnormal (<12Ug/dl)
Patients (%age)	125 (78.2%)	35 (21.8%)

Table-VIII. This table shows that 2.5% of the patients were found to have β thalassaemia trait.		
Hemoglobin electrophoresis	**Normal**	**Abnormal (trait)**
Patients (%age)	155 (97%)	5 (3%)

The results of our study are similar to the study carried out in India which showed a high incidence (72.3%) of iron deficiency anemia in the hospital catering for poor Hindu and Muslim pregnant women of Delhi (Sharma and Soni, 1999, unpublished data). In India, according to ICMR, the relative prevalence of mild, moderate and severe anemia is 13%, 57% and 12% respectively[19]. In our study out of 160 patients 83.7% were from lower socioeconomic class. In U.S. a high prevalence of anemia was seen in blacks, native Americans, immigrants from developing countries and individuals of low socioeconomic status[20,21]. The reason behind this dichotomy is basically that our population anemia antedates pregnancy, is aggravated by increased requirements during pregnancy and blood loss at delivery, infections in the antenatal and postnatal periods, prolonged periods of lactation and the early advent of next pregnancy perpetuates it[4]. Secondly diets are low in iron bioavailability and sufficient iron is not supplied by diet alone. Poverty compounded by population explosion in developing countries is mainly responsible for low iron in diet. Pregnant women are not allowed to eat types of food due to customs and rituals in our social circumstances. Pica a common problem. Worsen iron deficiency by replacing iron foods[22].

CONCLUSION

Our study showed that 80% of our pregnant women are anemic and the iron deficiency anemia is the most common anemia, especially in the lower socioeconomic class. Whether routine iron supplementation be given or not is a debatable question in the western countries. However, there is no disagreement that it must be given to all pregnant women in underdeveloped countries[23,24]. The WHO recommended universal oral iron supplementation for pregnant women (60 mg of elemental iron and 250µg of folic acid once or twice daily) for 6 months in countries with a prevalence of anemia less than 40% and for another 3 months post partum in countries with a prevalence of greater than 40%. The studies show improved maternal and perinatal outcome by routine iron supplementation during pregnancy[25,26].

A national health program for food fortification with folic acid and iron should be started. Females of reproductive age group should be reached at their door steps especially of lower and lower middle class and contraception and birth spacing should be encouraged. We believe that improving the sanitation and personal hygiene along with better female education should result in improved nutritional status of our families.

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