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STUDY OF PREVALENCE AND TYPE OF ANEMIA IN ANTENATAL PATIENTS IN TERTIARY CARE CENTRE

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ABSTRACT

Introduction: Anaemia leads to insufficient oxygen supply to meet body's physiological needs. Iron deficiency is the most common cause of anemia worldwide. **Aims and Objectives:** The study is done to analyse the prevelance of anemia and its types in pregnantwomen to improve the maternal and fetal well being. **Material and Methods:** The study included 9554 pregnant patients and their haemoglobin concentration was estimated by using five part differential cell counter machine. Peripheral blood smear was also made to study the morphological type of anemi. **Results:** 52%(4968/9554) of pregnant patients were found to be anemic. Anemia was prevelant more in multigravida than in primigravida. Majority of patients had microcytic hypochromic anemia. 47.1% had moderate anemia, 40.1% had mild anemia and 12.1% had severe anemia. **Conclusion:** Iron deficiency leading to microcytic hypochromic anemia is the commonest pattern of anemia seen in pregnancy and more prevelant in multigravid women.

KEYWORDS: Anemia, Microcytic, Pregnant women, Multigravida, Primigravida.

INTRODUCTION

By definition Anemia (from the ancient Greek ???????, anaimia, meaning "lack of blood") means decrease in the total amount of hemoglobin or the number of red blood cells.[1] leading to an insufficient oxygen supply to meet the body's physiologic needs.[2] It may be caused by multiple factors that includes nutritional deficiencies. Iron deficiency is thought to be the most common cause of anemia world wide, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders, can also cause anemia.[2] it is a well known fact that during pregnancy there is increased demand of dietary nutrients, and in the absence of nutritional supplementation, the severity of anemia increases with increasing gestational age. 50% cases of anemia are due to dietary iron deficiency.[3] Other factors causing anemia in pregnancy are parity, gestational age, history of menorrhagia, consecutive birth interval, malaria, intestinal parasitic infection, chronic illness, and blood loss during pregnancy.[4] Anemia in pregnancy is a high risk factor for preterm birth, low birthweight baby, and small-for-gestational-age babies.[5] and also postpartum hemorrhage.[6] It is a directly or indirectly associated with about 20% of all maternal deaths. About half of these occur in South Asian countries, out of which India contributing to approximately 80%.[7]

According to WHO, anemia is the most common nutritional deficiency disorder globally and is a serious health concern among pregnant women. The 2011 estimates suggest that anemia affects around 800 million children and women all over the world, including 273 million children, 496 million nonpregnant women, and 32 million pregnant women.[3]

As per criteria given by WHO anemia is indicated by concentration of haemoglobin in pereferal blood less than 11gm/dl. Based on the level of Hb, anemia is graded as:

" Mild anemia: Hb level 9-11gm/dl.
" Moderate anemia: Hb level 7-9gm/dl.
" Severe anemia: Hb level less than 7gm/dl.

The aim of this study is to analyse the prevalence of anemia and its type in pregnant women and to improve maternal and fetal well being.

MATERIALS AND METHODS

The study was done in the department of obs and gynae and department of clinical pathology of PMCH, Patna from December 2018 to may 2019. All pregnant women with anemia attending obs and gynae OPD were enrolled in the study. Study design was prospective. The inclusion criteria included pregnant women at their first antenatal

visit who were willing to participate in the study. Those excluded were pregnant women at their follow-up antenatal visit and those who had received blood transfusions in the index pregnancy or were already receiving treatment for anaemia in pregnancy before their booking visit.

The haemoglobin concentration was estimated by using five part differential cell counter machine. Anemia was graded as mild, moderate and severe according to criteria laid down by WHO.

A pereferal blood smear was also made to study type of anemia. The size of red cell was compared to the size of nucleus of small lymphocyte to lebel cell as microcytic, normocytic or macrocytic, and if the central pallor was more than one third of cell the cell was counted as hypochromic. Simple tabulation and proportion was calculated.

RESULT

This study included 9554 pregnant patients over a period of six months from December 2018 to may 2019. Prevalence of anemia was found to be 52%(4968 patients out of 9554).As shown in table 1 primigravida contributed 27.4% and multigravida 72.6% of anemic patients.

As shown in table 2, 40.1% of patients was of mild grade of anemia, 47.1% belong to moderate and 12.8% of patients was severly anemic.

Table 3 shows the type of anemia. Majority of patients was of microcytic hypochromic (53.7%) type, followed by normocytic normochromic(31.1%), dimorphic (12.5%) and macrocytic(2.7%)

Table1: Number of Pregnant patients and their percentage.

No. of patients	Percentage
Primigravida 1362	27.4%
Multigravida 3606	72.6%

Table 2: Showing distribution according to grades of anemia.

Grades of anemia	No.of patients	Percentage
Mild(9-11g/dl)	1995	40.1%
Moderate(7-9g/dl)	2338	47.1%
Severe(<7g/dl)	635	12.8%
Total	4968	100%

Table 3: Showing distribution according to types of anemia.

S.No	Type of anemia	No.of patients	Percentage
1	Microcytic hypochromic	2668	53.7%
2	Normocytic normochromic	1543	31.1%
3	Dimorphic	624	12.5%
4	Macrocytic	133	2.7%
	Total	4968	100

DISCUSSION

Anemia still remains to be the most important cause of increased maternal morbidity and mortality in developing countries like India. Prevalence of anemia in present study was 52%.Indian Council of Medical Research surveys showed that over 70% of pregnant women in the country were anemic.[8] In contrast, very high prevalence was observed by Viveki et al., Totega, Agarwal et al., and Gautam et al. (82.9%, 84.9%, 84%, and 96.5%, respectively).[9,10,11,12] Lower prevalence in the present study may be due to better awareness and implementation of various health programs. Similar to our study 4 survey conducted in 2012-13 also showed prevalence of 59.6% in Haryana with slightly higher prevalence in rural areas showing 60.5%.[13] But this value is still much higher than the goal targeted by national nutritional anemia prophylaxis programme which is 25%.

In the present study the prevalence of moderate anemia was highest (47.1%) followed by mild anemia (40.1%) and prevalence of severe anemia was 12.8%. DLHS 3 study also reported prevalence of mild anemia as 41% and moderate anemia as 53% which is close to our study.[14] Percentage of severe anemia similar to our study was observed by Bansal B which is 14.3%.[15] The incidence of anemia during pregnancy is expected to be higher as the number of pregnancies increases because of the repeated drain on the iron reserves. In fact, multiparity, especially when the pregnancies have occurred in a rapid sequence, is traditionally regarded as a cause of anemia in pregnancy.our study also shows the similar result as prevalence of anemia was much higher in multigravida(72.6%) as compared to primigravida in which it is only 27.4%.In order to avoid anemia during pregnancy, receiving early antenatal care would serve as an important preventive measure.

During pregnancy, the increase in RBC mass gives an indirect measurement of iron stores. The principal cause for a failure of the expansion of the hematocrit is the absence of bone marrow hemosiderin. This finding indicates exhaustion of storage iron, its absence being the earliest sign of iron deficiency. If IDA is clinically evident by a decreased hemoglobin concentration, by a characteristic microcytic, hypochromic blood smear, and by altered RBC indices, the iron stores will be nonexistent. Iron stores are reduced in IDA, blood loss, and nutritional anemias; however, hemolytic processes, hereditary anemias, and ineffective iron utilization

during infection or inflammation may be associated with normal to increased storage iron levels and concomitant reductions in hemoglobin levels, and RBC indices. According to WHO commonest cause of anemia in pregnancy is iron deficiency anemia. Other than iron deficiency, other causes of anemia in the peripartum woman include nutritional deficits such as folate and vitamin B 12 deficiencies. In the present study prevalence of microcytic hypochromic anemia was 53.7% which supports WHO report. Other morphological types were normocytic normochromic (31.1%), Dimorphic(12.5%) and Macrocytic (2.7%). A key component of a safe motherhood initiative is to reduce maternal mortality by half through the eradication of anaemia during pregnancy. The management of anaemia in pregnancy is a potentially feasible and cost-effective intervention to reduce maternal, foetal, and perinatal mortality and morbidity.

CONCLUSION

This study has shown that anemia in pregnancy is still a major health problem. Iron deficiency leading to microytic hypochromic anemia is the commonest pattern of anemia seen in pregnancy, and is more prevalent in multigravid women. Hence, public health campaigns to create awareness about the importance of early booking for antenatal care are recommended. This will provide opportunity for early detection and treatment of anaemia, as well as the timely institution of preventive measures like haematinics.

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