Original Research Article

Study of Prevalence of Anemia in Pregnant Woman Attending in Tertiary Care Hospital at A.N.M.C.H., Gaya, Bihar

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Abstract
Objective: *During pregnancy Anemia is the most common hematological disorder presented clinically. According to the reports of World Health Organization (WHO), nearly 35% to 75% (average 56%) of the pregnant women in developing countries are anemic. Among worldwide distribution South Asian countries has highest Prevalence of anemia. India has the highest prevalence of (70-75%). The aim of present study was to determine the evaluation of prevalence of anemia and factors influencing the causation of anemia among pregnant women attending in tertiary care hospital at Gaya, Bihar.*
Materials and Methods: *A total of 652 pregnant women age group ranges from 18-37 years attending OPD for antenatal check up and for delivery as well in labor room were included in the study. It was the community based cross-sectional study and participants were randomly selected by using multi stage sampling method. From all the pregnant women blood samples for CBC and Iron studies (TIBC, Ferritin, % saturation and transferrin) were collected. From all the samples smear were prepared on clean glass slide, stained and seen under oil immersion field of microscope. Samples for CBC and iron studies were processed according to standard guidelines. CBC was done in five part fully automated Mindray and Iron studies by fully automated architect machine supplied by Roche pharma and data were collected in a pre-tested questionnaire. Anemia was defined as hemoglobin (HB) lower than 11 g/ dl during pregnancy.*
Result: *A high prevalence (about 77%) of anemia was observed among pregnant women. The mean hemoglobin level was found to be 9.2g ± 1.5 g%, ranging from 5 to 12 g%. Anemia was predominantly observed among lower socio-economic group. The prevalence of anemia increased with increase in gestational age, gravida and decreased with increase in birth interval.*
Conclusion: *High prevalence of anemia among pregnant women indicates anemia to be a major public health problem in our country. Factors such as socioeconomic status, family size, and literacy rate, level of awareness, birth interval, and gravida contribute to this high prevalence.*
Keywords: *Anemia, Prevalence, Hemoglobin Level, Gestational Age, Gravida.*

Introduction

World Health Organization defines anemia as hemoglobin below 11g/dl as the lower limit acceptable and 10.5g/dl in the Prevalence of Anemia in Pregnant Women in second half of pregnancy. Anemia can further be classified into

mild anemia (10 -10.9g/dl), moderate anemia (7-9.9g/dl) and severe anemia (less than 7g/dl).

Due to different socioeconomic status, living styles and health seeking behaviors in different cultures, the prevalence of anemia in pregnancy varies. In Pregnancy there is a significant increase in iron requirement with respect to the non-pregnant state. Iron requirements are reduced in the first trimester due to amenorrhea, they rise steadily thereafter from approximately 0.8 mg per day in the first month to approximately 10 mg per day during the last 6 weeks of pregnancy. The increased iron requirement is due to expansion of maternal red blood cell mass for increased oxygen transport, including transfer of iron, to both the growing fetus and the placental structures and as a needed reserve for blood loss and lochia at parturition.

Due to increased iron requirements, pregnancy is also a period of increased risk for anemia. Thus, a high proportion of women become anemic during pregnancy. Women go through a variety of physiological changes during pregnancy. Blood circulatory system Changes permitting normal fetal growth.

Due to increase in the volume of circulating blood, hemoglobin concentration decreases with dilution, even in normal pregnant women, forms the basis of physiological anemia in pregnancy. The mother is likely to develop iron and folic acid deficiency anemia during pregnancy since iron and folic acid in amounts necessary to the both mother and fetus are preferentially transported to the fetus.

Despite the existing programs on prevention and control of anemia, such as Iron and folic acid supplementation and free supply of iron preparations, reports from multiple large national surveys indicate that there has been no significant decline in the prevalence of anemia or adverse consequences attributed to it. Often programs and projects aiming to prevent and control anemia are constrained by the erroneous data regarding socio economic profile of the target group and or causative factors responsible for the same.

So, the main objective of the present study was to understand the health profile and the socio-demographic factors of the pregnant women and to estimate the exact prevalence of anemia and other associated factors among them based on the level of hemoglobin.

Materials and Methods

Present Study was conducted in the department of pathology, A. N. M. C. H. Gaya, Bihar, with the help of department Obstetrics and Gynecology, during the periods of June 2019 to September 2019. A total of 652 pregnant women age group ranges from 18-37 years attending OPD for antenatal check up and for delivery as well in labor room were included in the study. For determining anemia the outcome variable, each of the pregnant women enrolled in the study was advised to undergo hemoglobin and iron studies estimation.

The study participants were told about the purpose of the study and also the potential benefits that it may result in so as to help them make informed decision as to the participation in the study. They had also been informed that the participation is completely voluntary. Written informed consent for participation in the study was taken. Data pertaining to the various independent variables such as the socio-demographic factors, literacy levels, and number of visits for ante natal check-up was recorded. Details regarding their reproductive attributes such as gravidity, age at first pregnancy and birth interval were also sought. It was also asked whether or not they were taking iron and folic acid tablets during present pregnancy.

WHO guideline was used for interpretation and classification of anemia. As anemia is classified into three degrees Mild, Moderate and Severe, according to WHO, HB cut-off values of anemia were 10.0-10.9 g/dl (mild), 7.0-9.9 g/dl (moderate) and severe(less than 7g/dl).

It was the community based cross-sectional study and participants were randomly selected by using multi stage sampling method. From all the

pregnant women blood samples for CBC and Iron studies (TIBC, Ferritin, % saturation and transferrin) were collected. From all the samples smear were prepared on clean glass slide, stained and seen under oil immersion field of microscope. Samples for CBC and iron studies were processed according to standard guidelines. CBC was done in five part fully automated Mindray and Iron studies by fully automated architect machine supplied by Roche pharma and data were collected in a pre-tested questionnaire.

Results

Out of the total 652 pregnant women, 502 (77%) pregnant women were anemic and 150 (23%) pregnant women were non anemic.

Table -1 shows Anemic and Non anemic pregnant women

Total pregnant women included in the study N=652	Anemic pregnant women		Non anemic pregnant women	
	Total no.	percentage	Total no.	percentage
	502	77	150	23

Table -2 shows Grading of Anemia in pregnant women

Age Group of anemic pregnant women in years	Mild Anemia	Moderate Anemia	Severe Anemia	Prevalence of Anemia
18-22	52	32	24	108
23-30	202	102	12	316
More than 30	48	22	8	78
Total no. of pregnant women	302 (60.16%)	156 (31.07%)	44 (8.77%)	502 (100%)

Discussion

During this study, out of 652 pregnant women, 502 were anemic (77%) and 150 were non anemic (23%). Also, among these anemic pregnant women, majority (60.16%) of them were mildly anemic, whereas 31.07% were moderately anemic and 8.77% were severely anemic. Out of 652 cases, nearly 65% were from rural background and the rest came from urban areas.

Out of 652 pregnant women nearly 80-85% woman belonged to lower socio-economic group with poor and nil literacy and little awareness regarding anemia. Rest 15-20% belonged to middle socio economic class with improved literacy, awareness and good nutrition. Prevalence of anemia found higher in those pregnant women who were from lower socio economic background with poor literacy and awareness. They were in poor state of nutrition irrespective of their native areas (Rural or Urban). Our study revealed that anemia was mostly recorded in multi gravida patients in the age group of 25-35 years and those at the second trimester of pregnancy.

Of 652 cases, 228 were primigravida and rest 424 was multigravida. Our study further revealed that prevalence of anemia was higher in multigravida patients (65%) compared to primigravide, also in patients who were illiterate or with poor literacy compared to well educated group. Results of our work corroborates well with the reports of WHO on the prevalence of anemia in India. Our result is quite same in agreement with the earlier observation that iron deficiency is the commonest cause of anemia in developing countries and that is why WHO has emphasized on the need of epidemiological studies.

Conclusion

Prevalence of anemia was higher in the pregnant women at the second trimester and also at the 25-36 years of age group, and those who were multigravida with shorter birth interval. There is a significantly high prevalence of anemia among pregnant women in lower socio - economic group in India. Government Programs should be planned and implemented on target population group need to be with active participation of local residents.

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