PREVALENCE AND FACTORS ASSOCIATED WITH ANEMIA AMONG PREGNANT WOMEN AT BIRAT MEDICAL COLLEGE TEACHING HOSPITAL.

Amit Deo[1]*, Jiba Nath Dhamala[1], Indra Yadav[1], Raj Dev Mahato[2], Tarun Pradhan[3]

Affiliation

1. Lecturer, Department of Obstetrics and Gynaecology, Birat Medical College and Teaching Hospital, Nepal

2. Assistant Professor, Department of Obstetrics and Gynaecology, Birat Medical College and Teaching Hospital, Nepal

3 Associate Professor, Department of Obstetrics and Gynaecology, Birat Medical College and Teaching Hospital, Nepal

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* Corresponding Author

Dr. Amit Deo
Lecturer
Department of Obstetrics and Gynaecology
Birat Medical College and Teaching Hospital, Nepal
Email: dramitdeo368@gmail.com
ORCID: https://orcid.org/0000-0003-0169-2064

Citation

ABSTRACT

Introduction

Anemia in pregnancy is associated with many adverse fetal and maternal outcomes. It is the commonest hematological disorder that occurs in pregnancy. Prevalence of anemia in pregnant women is very high worldwide, especially in developing countries. The objective of this study was to find the prevalence and the factors associated with anemia among pregnant women attending Birat Medical College Teaching Hospital.

Methodology

A descriptive prospective study conducted for 6 months in the Department of Obstetrics and Gynaecology OPD at Birat Medical College Teaching Hospital. All consecutive pregnant women attending for antenatal checkup in the department of Obstetrics and Gynaecology OPD at Birat Medical College Teaching Hospital were included in the study. Participants with multiple pregnancy, history of recent blood transfusion, chronic kidney disease and other chronic medical diseases were excluded from the study. All participants were advised for Hemoglobin level checkup at first ANC visit as a routine antenatal investigation and questionnaire was asked about the associated risk factors of anemia on predesigned proforma. The collected data was entered in Microsoft Excel and analyzed by using SPSS version 22.

Result

The prevalence of anemia was high (58.9%)of which mild anemia (Hb level 9-10.9gm/dl) was found in 56.1% of participants, moderate anemia (Hb level 7-8.9gm/dl) found in 2.1% of participants and severe anemia (Hb level <7 gm/dl) was found in 0.8 % of participants. Factors statistically associated with anemia in pregnancy were caste, literacy, vegetarian diet of pregnant women.

Conclusion

The prevalence of anemia was found to be very high in pregnancy. Anemia in pregnancy was found to be associated with literacy, socioeconomic status and dietary habits of pregnant women.

KEYWORDS

anemia, factors associated, pregnancy, prevalence

INTRODUCTION

Anemia is the most common nutritional deficiency disorder in the world and nutritional anemia is one of the frequent complications during pregnancy. The word implies a decrease in the oxygen-carrying capacity of the blood and is best characterized by a reduction in hemoglobin concentration. In pregnancy, it is known have larger increase in plasma volume with red cell mass dilution causing relative changes in hemoglobin level, the term known as "physiological anemia". These alterations have been known for centuries, and the term "plethora gravidarum" from medieval ages indicates this condition. However, it is still an open question to what extent this "hydremia" is physiologic or pathologic. There are two contrasting philosophies for this expansion. First, it is preferable to prevent pregnant women from developing too low hemoglobin concentrations. According to another point of view the "physiologic anemia" is of great importance for normal fetal growth and should be passively observed. Moreover, the relationship between a successful outcome of pregnancy and this normal expansion in maternal plasma volume has been noted. This controversy reflected recommendation from World Health Organization (WHO) to form optimum level of hemoglobin and hematocrit during pregnancy. WHO has estimated the prevalence of anemia in pregnant women in developed and developing countries to be 14% and 51% respectively.[1] A pregnant woman will be considered anemic if hemoglobin (Hb) level will be <11 gm/dl. Severity of anemia will be measured as follows: mild anemia if Hb level will be 9.0–10.9 gm/dl; moderate anemia if Hb level will be 7.0–8.9 gm/dl; and severe anemia ifHb level will be <7.0 gm/dl. [2]Nepal is one of the least developed countries in the world having low human development indexes, low literacy rate and low life expectancy.[3] Anemia during the pregnancy is found to be associated with increased risk of maternal and perinatal morbidity and mortality including intrauterine growth retardation and low birth weight.[4] Anemia occurs in all age groups, but it is most common among pregnant women and young children.[5] The prevalence of anemia in pregnancy varies considerably because of differences in socioeconomic conditions, lifestyles and health seeking behaviors across different cultures.[6] Anemia in pregnancy is considered as one of the major risk factors for contributing to maternal death in developing countries.[6] During pregnancy, there is an increased demand for nutrients. Therefore, pregnant women are more vulnerable to nutritional deficiencies, which together with infections, are important causes of anemia.[7] The objective of this study was be to find the prevalence anemia during pregnancy and risk factors associated with anemia among pregnant women at Birat Medical College Teaching Hospital (BMCTH).

METHODOLOGY

A descriptive prospective study conducted for 6 months(February 2021 to July 2021) in which 239 pregnant women in the department of Obstetrics and Gynaecology out patient at Birat Medical College Teaching Hospital. A purposive, total enumeration sampling technique was used to include the participants after permission granted from Institutional Review Committee, Birat Medical College teaching Hospital Teaching (IRC, BMCTH). Informed consent was taken from participants for the study. All Consecutive pregnant women attending for antenatal checkup in the department of Obstetrics and Gynaecology OPD at Birat Medical College Teaching Hospital were included in the study. Pregnant women with multiple pregnancies, history of recent blood transfusion, chronic kidney disease and other chronic medical disease were excluded from the study. All participants were advised for Hemoglobin level checkup at the first Antenatal Checkup (ANC) visit as routine antenatal investigation and pre-tested questionnaire was asked and noted about socio-demographic variables and associated risk factors of anemia.On the basis of hemoglobulin level participants were classified according to World Health Organisation (WHO) classification of anemia.The booking hemoglobin level and risks factor associated with anemia in pregnancy were collected in pre designed proforma. The collected data was entered in Microsoft Excel and analyzed by using SPSS version 22. Statistical analysis was done for percentage, frequency for categorical variables and Pearson's correlation was done between socio demographic variables and anemia. P value less than 0.05 was considered significant.

RESULTS

There were total of 239 pregnant women included in the study. Total numbers of anemic patients were 141 within different grades. The prevalence of anemia was 58.9%. The socio-demographicprofiles of the participants are shown in table 1. The age of pregnant women was in the range of 17 to 42 years. The mean age and standard deviation of the participants were 24.49±4.70 years of which 93.3% were from rural areas. 59% of the participants were primigravida and 41% were multigravida. Among the participants, Madhesicastes were 35.6% followed by Janjati (25.1%), Brahmin (21.8%), Chettri (7.1%), Muslim (6.3%) and Dalit (4.2%). Most of them were Hindu (91.6%). Majority of the patients were housewife and 58.6% of the participants were not having any formal educations. 82.8% of participants were on mixed vegetarian dietary habit and 61.5% of participants had less than five members in the family.

Table 1: Socio-demographic pattern of the participants (n=239).

Variables		n(%)
Age (years)	Less than or equal to 20	50(20.92)
	21-35	183(76.5)
	More than 35	6(2.5)
Parity	Primigravida	141(59)
	Multigravida	98(41)
Residence	Rural	223(93.3)
	Urban	16(6.7)
Caste	Madhesi	85(35.6)
	Janajati	60(25.1)
	Brahmin	52(21.8)
	Chettri	17(7.1)
	Muslim	15(6.3)

Religion	Dalit	10(4.2)
	Hindu	219(91.6)
	Muslim	14(5.9)
	Buddhist	6(2.5)
Literacy	Illiterate	140 (58.6)
	Literate	99(41.4)
Occupation	Job holder	9(3.8)
	Housewife	230 (96.2)
Dietary habit	Vegetarian	41(17.2)
	Mixed diet	198 (82.8)

Table 2. Hemoglobin values of 239 participants were categorized according to World Health Organisation (WHO) classification of anemia. 59% of the participants were suffering from anemia. Out of which 134 were suffering from mild form of anemia, five were suffering from moderate anemia and only two were suffering from severe anemia.

Table 2: Hemoglobin level (WHO classification) of the participants(n=239).

Hemoglobin level	(gm %)	n (%)
Normal	more thanor equal to 11gm%	98(41)
Mild	9-10.9	134(56.1)
Moderate	7-8.9	5(2.1)
Severe	Less than 7	2(0.8)

Table. No 3 shows correlation of anemia with various socio-demographic variables in which different caste, literacy status anddietary habits had showed significant correlation with anemia during pregnancy. (p value less than 0.05)

Table. 3: Correlation of anemia with socio-demographic variables

Anemia	
Residence	0.44
Caste	0.004*
Religion	0.57
Literacy	0.00*
Occupation	0.11
Diet	0.001*
Gravida	0.827

Level of significance: less than 0.05*

DISCUSSION

Anemia is a largely curable disorder but still remains as a major public health problem in many countries. According to WHO, the prevalence of anemia is 24.8%, with a huge difference in occurrence between developed and developing countries.[8] Anemia is more prevalent in pregnancy because of high demand for iron during pregnancy. Anemia in pregnancy is of special concern as it affects not only the mother but also the growing fetus. Global prevalence of anemia in pregnancy is still very high (41.8%).[8] If anemia in pregnancy not treated it can lead to increase the risk of pre-term birth, low birth weights, restricted fetal growth, development of sepsis soon after birth with high chances of maternal and infant mortality.[9,10]

In our study the prevalence of anemia among pregnant women was 59% which is similar to the study conducted by Lamichhane et al. which shows the prevalence of anemia among pregnant women was 60.2%.[11] This maybe because of a similar socio demographic characteristics of both study. The prevalence of anemia in our study is higher than the national prevalence (41%).[12] This might be because the most pregnant women in our study were from rural areas, low socioeconomic status and illiterate. The prevalence of anemia among pregnant women in developed countries is 14%. The difference might be due to geographical variation, differences in socioeconomic status, literacy, cultural and dietary related factors between the study participants. Literate women were less likely to be anemic compared to illiterate women. Educated pregnant women have better income and eat nutritious food and hence are less likely to be anemic. In our study Literacy and Dietary habit were significantly associated with the anemia in pregnancy which is similar to the study conducted by Yadav et al.[13], in which, 66.9% of pregnant women were found anemic. Women with lower level of education were three times more anemic than with higher education and women with inadequate dietary habit were four times more anemic than women with adequate dietary habits. In our study multigravida was significantly associated with the anemia in pregnancy which is similar to the study conducted by Shah et al. which showed that in 600 pregnant women 51.5% were found to be suffering from anemia in pregnancy and 60% of the anemic participants were multigravida.[14] This could be due to inadequate pregnancy spacing, lack of pregnancy preparedness and low socioeconomic status leading to diminished iron store pre pregnancy. But study done in Ethiopia[15] was opposite, where primigravida were found to be more anemic than multigravida. The reason was thought to be lack of food availability and less iron reserve before pregnancy.

Women who had secondary or higher education were less likely to be anaemic compared to their counterparts. Education has been reported to reduce the risk of being anaemic in several studies. Educated pregnant women have better income and eat nutritious food and hence do not get nutritional anaemia.[16] A study in Ethiopia also reported higher prevalence of anaemia among pregnant women who had no education.[17] Secondary and higher education had been associated with several other good maternal and child outcomes like higher frequency of exclusive breastfeeding, attending for antenatal care visits for 4 or more recommended visits, utilization of skilled attendance during delivery, and health care seeking when the children have pneumonia or malaria.[16] Women education and empowerment are not within health sector and there is a need for multisectoral collaboration in combating anaemia and other maternal health problems.

Women who attended ANC four or more times had lower prevalence of anemia (17.4%) than those who attended only once (35.3%); women who reported having received iron supplementation in current pregnancy had lower prevalence (20.2%) than those who have not received any

supplementation (29.5%), but the difference was not statistically significant. Other factors that were analyzed but were not associated with anemia during pregnancy include gravida, parity, and history of miscarriage, pica habits, Human Immunodeficiency Virus (HIV) status, and gestational age.[18] Though, this study didn't include above risk factors but are important factors to be discussed.

Majority of factors responsible for anemia during pregnancy were modifiable at different levels. Health promotion and education in community level about pregnancy and its complication and iron supplimentation could play major role in prevention.

CONCLUSION

The anemia in pregnant women in our institute showed high prevalence of 58.9%. The reason may be because of pattern of socio demographic population. The anaemic pregnant women showed significant correlation with illiteracy, dietary habits and with certain caste.

RECOMMENDATION

Anemia in pregnancy was found to be high in the study population. Most of the factors were modifiable. Thus, screening of anemia in early pregnancy and preconceptional counseling and treatment of anemia before pregnancy may help reducing antenatal and postnatal maternal fetal complication due iron deficiency.

LIMITATION OF STUDY

Sample size can be the limiting factor for this study.

FINANCIAL DISCLOSURE

None

CONFLICT OF INTEREST

None

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