



PREVALENCE AND RISK FACTORS OF ANEMIA AMONG PREGNANT WOMEN ATTENDING A TERTIARY CARE HOSPITAL IN JHARKHAND.

Gynaecology

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ABSTRACT

Background: — ANEMIA in pregnancy is an important health issue resulting in high maternal morbidity and mortality. Anemia affects almost two-thirds of pregnant women in developing countries and contributes to maternal morbidity and mortality and to low birthweight. Pregnant women are the most vulnerable groups to anemia. The purpose of the current study was to identify factors associated with anemia among pregnant women attending tertiary care hospital.

Objective: — To determine the prevalence of anemia and the dietary and socioeconomic factors associated with anemia in pregnant women.

Methods: A cross-sectional study was conducted at Tertiary care hospital, Jharkhand from April 2018 to June 2018. It involved the collection of data on socio demographic and obstetric variables, medical interventions and malaria infection, consumption of iron containing foods and supplements using a structured questionnaire. Hg level determination, were assessed following the standard procedures.

Result: Out of 165 women, 15 (9.09%) were non-anemic and remaining 150 (90.91%) were anemic. Out of 150 anemic women the prevalence of mild to moderate anemia (hemoglobin from 7.0 to 10.9 g/dL) in the cohort was 92%; of these, 50% had mild anemia (hemoglobin from 9.0 to 10.9 g/dL) and 42% had moderate anemia (hemoglobin from 7.0 to 8.9 g/dL), and 12 (8%) were severely anemic (hemoglobin < 7.0 g/dL).

Conclusion: Lack of ANC, gestational age at first ANC, Malaria infection, fish/Meat intake and, visits were significantly associated with anemia. Addressing these factors can reduce the incidence of anemia in pregnancy. Socioeconomic determinants constitute most of the anemia cases and, hence, should be considered as major risk factors of anemia in women attending for delivery at term.

KEYWORDS

anaemia in pregnancy, risk factors, developing countries, Antenatal visits, Iron supplements

INTRODUCTION

ANEMIA is a major public health problem with about two billion people being anemic worldwide [1]. Although nutritional anemia affects members of both sexes and all age groups, the problem is more prevalent among women and contributes to maternal morbidity and mortality, as well as to low birthweight [2]. It has been estimated that nutritional anemia affects almost two-thirds of pregnant women in developing countries. Anemia is defined as a hemoglobin level of <11 g/dL according to the World Health Organization criteria (3). Anemia could be classified as mild, moderate and severe. The Hb level for each class of anemia in pregnancy are 10.0–10.9 g/dl (mild), 7–9.9 g/dl (moderate) and <7 g/dl (severe) [4]. Packed cell volume (PCV) of less than 33.0% is regarded as anemic by World Health Organization (WHO) [5]. Hemoglobin concentration is the most reliable indicator of anemia at the population level. Measuring Hb concentration is relatively easy and inexpensive, and this measurement is frequently used as a proxy indicator of iron deficiency [6].

Anemia in pregnant women is often caused by iron deficiency, which is the most common nutrient deficiency in the world. It is more common in developing countries because of poor nutritional status and high prevalence parasitic infestation [7]. It has been estimated that, in developing countries, half of the population (mainly children and women of reproductive age) is affected by anemia [8]. Anemia also could be caused due to increased hemolysis, diminished erythropoiesis and blood loss [9]. Among the other causes of anemia, heavy blood loss because of menstruation or parasitic infections can lower blood hemoglobin (Hb) concentration. Acute and chronic infections, including malaria and HIV can also lower blood Hb concentration. The presence of other micronutrient deficiencies can also increase the risk of anemia.]

Some women are anemic even before they become pregnant and others become progressively anemic during pregnancy [10]. Maternal anaemia also contributes to an increase in perinatal mortality, low birth weight, still birth and foetal wastage. Anaemia in pregnancy reduces tolerance to blood loss and leads to impaired function and cardiac failure [11]. Anemia prevalence data remains an important indicator in public health since anemia is related to morbidity and mortality in the population groups usually considered to be the most vulnerable; pregnant women and children under five and is also useful to monitor

the progress of reproductive health. Despite efforts being made to reduce the burden of anemia, its prevalence is still high in developing countries. Thus, the objective of this study was to determine factors associated with anemia among pregnant women attending Tertiary hospital, Jharkhand.

MATERIALS AND METHOD

The study was conducted in the Tertiary care Hospital, (M.G.M Medical college and Hospital), Jamshedpur, Jharkhand from April 2018 to June 2018. 165 pregnant women aged 15 years and above who visited the antenatal clinic of the hospital during the period were randomly selected in the study. Total number of participants were divided into anaemic and non anaemic. Further anaemic women were divided into mild, moderate and severe ANEMIA. Primary data were collected from the women as well as a review of their antenatal records. Data on socio-demographic characteristics such as age, educational level, occupation, residence, BMI, Religion, number of ANC visits, gravidity, pregnancy gap, hemoglobin level at current visits, frequency of taking iron containing foods and administration of iron and folic acid supplementation were collected directly from the mothers on to a questionnaire designed specifically for this study. Additional data included malaria infection during current pregnancy. Chronic diseases leading to anemia such as renal, cardiac, and lung diseases and haemoglobinopathy were excluded.

OBSERVATION

Table :1 Prevalence of ANEMIA in pregnant women attending a tertiary hospital. (n=165)

Group	Number	%
Non anaemic	15	9.09
Mild ANEMIA (9.0-10.9g/dl)		
Hb (10.0-10.9g/dl)	28	16.97
Hb (9.0-9.1g/dl)	47	28.48
Moderate ANEMIA (7.0-8.9g/dl)		
Hb (8.0-8.9g/dl)	40	24.24

Hb (7.0-7.9g/dl))	23	13.94
Severe ANEMIA		
Hb<7.0g/dl	12	7.28

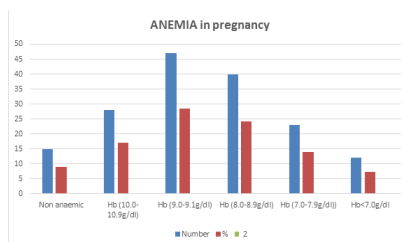


Table :2 Distribution of pregnant women by their sociodemographic characteristics. (n=150)

Characteristics	Number	%
Age		
<18	7	4.67
18-25	57	38
26-34	60	40
>35	26	17.33
BMI(Kg/m2)		
<18.5	6	4
18.5-24.9	136	90.67
25-29.9	8	5.33
≥30	0	0
Residence		
Urban	61	40.67
Rural	89	59.33
Occupation		
Farmer	71	47.34
Housewife	47	31.33
Government employee	32	21.33
Educational status		
Illiterate	36	24
Primary	67	44.67
Secondary	28	18.66
Higher	19	12.66
Religion		
Hindu	67	44.67
Christian	21	14
Muslim	27	18
Others (including Sarna, Sikh, parsi)	35	23.33

Table 3: Effects of different risk factor on the prevalence of ANEMIA among pregnant women. (n=150)

Characteristics	Number	%
Gravidae		
Primi	29	19.33
G2	35	23.33
G3	34	22.67
G4	28	18.67
>G5	24	16
Pregnancy gap		
<2 yrs.	17	11.33
2-3yrs.	61	40.67
>3 yrs.	72	48
History of Malaria		
Yes	29	19.33
No	121	80.67
Iron supplement		
Yes	102	68
No	48	32
Folic acid supplement		

Yes	13	8.67
No	137	91.33
Smoking		
Yes	9	6
No	141	94
Alcohol		
Yes	27	18
No	123	82
Gestational age during the visit		
1st Trimester	21	14
2nd Trimester	49	32.67
3rd Trimester	80	53.33
Frequency of taking fish/milk/meat		
Never	22	14.67
Once a week	61	40.66
Twice a week	45	30
>3 times a week	22	14.67

RESULT

A total of 165 pregnant women were included in the study.

Table 1 shows Out of 165 women 15 (9.09%) were non-anemic and remaining 150 (90.91%) were anemic. Out of 150 anemic women the prevalence of mild to moderate anemia (hemoglobin from 7.0 to 10.9 g/dL) in the cohort was 92%; of these, 50% had mild anemia (hemoglobin from 9.0 to 10.9 g/dL) and 42% had moderate anemia (hemoglobin from 7.0 to 8.9 g/dL) and 12(8%) were severely anaemic (hemoglobin <7.0 g/dL)

Table 2 shows the sociodemographic characteristics of participants. The maximum participants were in the age group 18-34 yrs. The overall prevalence of anemia (Hgb<11g/dl) was 150 (90.91%). Out of 150 participants, 89 (59.33%) lived in rural areas and the rest 61(40.67%) were from urban areas. Maximum 71(47.33%) were farmers, followed by 47(31.33%) housewife and 32(21.33%) government employee respectively. Maximum 136 (90.67%) have normal BMI between 18.5-24.9 and 6 (4%) have BMI<18.5. Out of 150 participants, majority 67(44.67%) have primary level of education, 28 (18.66%) have secondary level of education and 36(24%) were illiterate. Out of 150 majority 67(44.67%) were Hindu, 27(18%) were Muslim, 21(14%) were Christian and 35(23.33%) were other religion including Sarna, Sikh, Parsi etc.

Table 3 shows the different risk factor on the prevalence of anemia among pregnant women.

Majority 35(23.33%) were G2, 34(22.67%) were G3, 29(19.33%) were primigravidae and 52(34.67%) were >G4. Out of 150 anemic women maximum 72 (48%) have pregnancy gap of >3yrs, 61 (40.67%) have gap of 2-3 yrs and only 17 (11.33%) have gap of <2 yrs.

Majority, 80 (53.33%) of the women were in the third trimester (gestational age greater than 28 weeks), while 49 (32.67%) of the pregnant women were in their second trimester (between 13 and 28 weeks of gestation), 21 (14%) of the participants were in the first trimester (gestational age less than 13 weeks). Nearly, 68% of the anemic pregnant women were on iron supplement at the time of the study and only 13% had taken folic acid tablet during first trimester, while 32% were not taking iron tablets. 19.33% of anemic pregnant women are giving history of malaria infection. 6% are giving history of smoking and 27% are alcoholic. When asked about taking iron rich food supplements, 22 (14.67%) had never taken meat, fish or egg during the pregnancy, 61 (40.67%) once a week, 45 (30%) twice a week and only 22 (14.67%) >3 times a week.

DISCUSSION

Anemia in pregnancy is an important public health problem as it impacts not only on the pregnant woman but also significantly affects the unborn child. A cross sectional study was carried out in the tertiary hospital, Jamshedpur, Jharkhand to determine the prevalence of anemia and associated factors among antenatal (ANC) attendants. The prevalence of anemia in this study was 90.91%, with factors such as gestational age at first ANC visit, educational level, household

monthly income per person, duration of iron supplementation, malaria infection, and consumption of fish, meat being significantly association with the condition. This high prevalence of anemia among pregnant women in this study may be explained by the distribution of socioeconomic status of the population. However, the rate in our study was derived from the population, which was mainly composed of women with lower socioeconomic status.

The current study attempted to assess anemia prevalence and associated risk factors in pregnant women. The level of anemia. Depending on the severity and duration of anemia and the stage of gestation it can result in several adverse effects including low birth weight and preterm delivery [12]. This is consistent with the observation that 92% of the cases of anemia were mild to moderate. Nearly half of the women had mild anemia, with hemoglobin concentrations more than 9 g/dL but less than 11 g/dL. The prevalence of anemia among pregnant women in other developing countries ranges from 35% to 81% [13-17]. However, the prevalence of severe anemia was similar in our study (8%) reported for developing countries [2]. Results in our study showed that pregnancies with parity more than 2 were more likely to have anemia than those with a parity ≤ 2 . This may be due to the fact that women might have got pregnant with low levels of nutrients due to the depletion of reserves of the mother in prior pregnancies and lactation periods. Prepregnancy screening with appropriate nutritional counseling or iron and vitamin supplementation may be the best intervention to reduce the high prevalence of pregnancy-related anemia. In our study, anemic women had a lower BMI than nonanemic women. Women who reported eating meat two or more times a week had higher mean hemoglobin concentrations. This could be due to the fact that meat is an important source of heme.

Iron supplementation alone during pregnancy may be inadequate to prevent anemia in a large proportion of women who enter pregnancy with little or no iron stores. Therefore, if pregnancy is viewed as part of the reproductive cycle, the appropriate time for intervention is before pregnancy rather than during pregnancy [18]. Finally, we found low socioeconomic status, poor diets, increasing gravidity, and low educational status to be associated with anemia. Therefore, for anemia intervention to be most effective, it is important that women should attend antenatal clinics in the first trimester of their pregnancies. In this study, only 14% of women had their first antenatal care visit in the first trimester, and hence, most pregnant women missed anemia interventions. An earlier gestational age at first visit will increase the total antenatal care visits at the end of pregnancy and will also prevent the depletion of iron stores because of early supplementation. Thus, pregnant women who do not go for ANC regularly may not have the full benefit of iron supplementation. Also, early ANC visits will allow for prompt treatment of malaria infections which are usually more common during the early stages of pregnancy [19] and predisposes the pregnant woman to anemia [20]. Nutritional anemia is known to be the most common type of anemia [21] with pregnant women who take less than two meals a day, less diverse meals or less meat being more likely to be anemic. Thus, balanced diet involving meat and vegetable [22] and eggs [23] is essential during pregnancy in preventing anemia. Parasitic infections especially malaria and helminths during pregnancy have been associated with increased risk of maternal anemia and adverse pregnancy outcomes [24]. Women who had malaria during pregnancy were about five times more likely to be anemic than those who did not. Several studies [25-29] have found association between malaria infection and anemia in pregnancy. This relationship between malaria infection and anemia in pregnancy is critical in the health of women in their reproductive age especially in malaria endemic area.

CONCLUSIONS

Anemia in pregnancy is one of the most common preventable causes of maternal morbidity and poor perinatal outcome. The main causes of anemia during pregnancy involve deficiencies of key nutrients, infections, and parasitic diseases. In developing countries, demographic, cultural, and socioeconomic factors could affect the occurrence of anemia in pregnancy. Pregnant women with anemia, those going into labor and delivery, have the highest potential to encounter complications related to anemia. Socioeconomic determinants, which cause limited access to adequate food and antenatal care, constitute most of the anemia cases and hence, should be recognized as major risk factors for anemia in women. In many developing countries, pregnant women start antenatal care in the second or third trimester due to the belief that antenatal care is curative

rather than protective. Therefore, those women should be encouraged to begin antenatal care early after conception to allow adequate time for restoring iron stores. Strengthening malaria prevention, improving upon dietary intake and regular monitoring of haemoglobin levels during pregnancy could help reduce anemia in this vulnerable population. Well-designed health education messages and programs could also help improve uptake and usage of these intervention.

In settings where iron deficiency is the most frequent cause, additional iron intake is usually provided through iron supplements to vulnerable groups; in particular pregnant women and young children. Food based approaches to increase iron intake through food fortification and dietary diversification are important, sustainable strategies for preventing iron deficiency anemia in the general population. The focus needs to be shifted from diet during pregnancy to diet for the childbearing years, especially in developing countries where adolescent pregnancies are common and access to health care may be limited [30].

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