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Neonatology

" PREVALENCE OF ANEMIA AND ITS IMPACT ON MATERNAL AND FETAL OUTCOME: RETROSPECTIVE COHORT SINGLE-CENTER STUDY IN SAGAR

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ABSTRACT

Background: The most common cause of anemia in pregnancy is iron deficiency. During pregnancy, the demand for iron increases to support the growing fetus and placenta. If the mother's iron stores are inadequate, it can lead to anemia. Folate is essential for the production of red blood cells. Inadequate intake of folate-rich foods or poor absorption of folate can result in anemia. Vitamin B12 is necessary for the production of healthy red blood cells. A deficiency in this vitamin can cause anemia, and it may be more common in vegetarians or individuals with certain gastrointestinal conditions. Certain chronic conditions, such as kidney disease or autoimmune disorders, can interfere with the production or lifespan of red blood cells, leading to anemia. **Aims & objective:** The present study was conducted to assess the prevalence of anemia during pregnancy and its impact on maternal and fetal outcomes. **Materials & Methods**: 60 women with singleton pregnancies admitted in labor in early and late pregnancy were enrolled. Anemia was classified based on the WHO criteria; HB concentration of <11 g/dl was considered anemia. HB concentration of 10–10.9 g/dl, 7–9.9 g/dl, and <7 g/dl was considered as mild, moderate, and severe anemia, respectively. Parameters such as gravida, type of family, education status, and duration of pregnancy was recorded. **Results:** Out of 60 women, 36 had anemia, Maximum women were seen in age group 21-30 years. 24 anemic had nuclear and 12 had joint family. Maximum anemic (18) were illiterate. 20 anemic had primi gravida and 16 had multigravida. 18 anemic had >24 weeks of duration of pregnancy. The difference was significant (P< 0.05). Maternal complications were abortion in 1 normal and 5 anemic women, preterm labour in 2 normal and 3 anemic women, pre- eclampsia in 2 anemic and PPH in 1 normal and 4 anemic. Neonatal complications was LBW in 3 and 8, prematurity in 1 and 3, NICU admission in 1 and 5 and death in 3 normal and anemic women respectively. The difference was significant (P< 0.05). **Conclusion:** There was high prevalence of anemia during pregnancy. Pregnancy-related severe anaemia is linked to poor maternal and perinatal outcomes. It is one of the indirect causes of maternal death that can be prevented. Adolescent education, routine prenatal exams, early detection and treatment, and avoidance of too-late, too-early, too-frequent, and too-many pregnancies are all important.

KEYWORDS : Anemia, Pregnancy, Neonatal

INTRODUCTION

Anemia is a common condition that can occur during pregnancy. It is characterized by a decrease in the number of red blood cells or a decrease in the amount of hemoglobin in the blood, leading to reduced oxygen-carrying capacity. Anemia during pregnancy can be caused by various factors, including iron deficiency, folate deficiency, vitamin B12 deficiency, chronic diseases etc.[1]

The most common cause of anemia in pregnancy is iron deficiency. During pregnancy, the demand for iron increases to support the growing fetus and placenta. If the mother's iron stores are inadequate, it can lead to anemia. Folate is essential for the production of red blood cells. Inadequate intake of folate-rich foods or poor absorption of folate can result in anemia. Vitamin B12 is necessary for the production of healthy red blood cells. A deficiency in this vitamin can cause anemia, and it may be more common in vegetarians or individuals with certain gastrointestinal conditions. Certain chronic conditions, such as kidney disease or autoimmune disorders, can interfere with the production or lifespan of red blood cells, leading to anemia.[2]

Symptoms of anemia in pregnancy may include fatigue, weakness, pale skin, dizziness, shortness of breath, rapid heartbeat, and difficulty concentrating. If you suspect you have anemia during pregnancy, it is important to consult your healthcare provider for proper diagnosis and treatment.[3]

Additionally, it raises the chance of miscarriage, premature birth, stillbirth, low birth weight, and ultimately perinatal mortality. The second and third trimesters are when the majority of iron is transferred to the foetus.[4] According to calculations, women need 0.8 mg of iron on average per day in the first trimester and 7.5 mg per day in the third. Depending on the type of grain consumed, the average daily absorption from the Indian diet ranges from 0.8 mg/day to 4.5 mg/day.[5]

AIMS & OBJECTIVE

The present study was conducted to assess prevalence of anemia during pregnancy and its impact on maternal and fetal outcome.

MATERIALS & METHODS

The present study, titled "Prevalence of Anemia and its Impact on Maternal and Fetal Outcome: Retrospective cohort single-center study in BMC Sagar," was conducted on 60 patients who were admitted in labor at BMC Sagar. All participants in the study provided written consent to participate. Data such as name, age, etc. was recorded. The HB measurements of the pregnant woman were measured using HemoCue analyzer. Anemia was classified based on the WHO criteria; HB concentration of <11 g/dl was considered as anemia. HB concentration of 10–10.9 g/dl, 7–9.9 g/dl, and <7 g/dl was considered as mild, moderate, and severe anemia, respectively. Parameters such as gravida, type of family, education status and duration of pregnancy was recorded. The pregnant women were counselled about their HB level and importance of consumption of the iron and folic acid tablets, locally available iron-rich foods and regular antenatal check-ups, etc. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Assessment of parameters

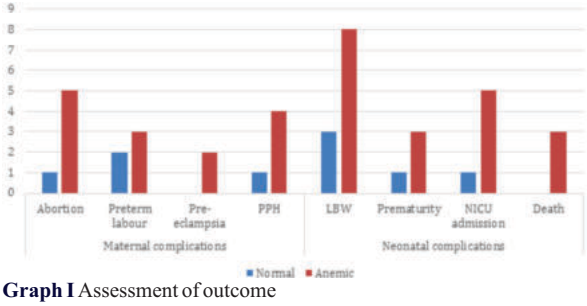
Parameters	Variables	Normal	Anemia	P value
Age	<20	10	12	0.05
	21-30	8	14	
	>30	6	10	
Type of family	Joint	14	12	0.04
	Nuclear	10	24	
Education	Illiterate	8	18	0.03
	Primary	5	7	
	Secondary	7	6	
	Higher	4	5	
Gravida	Primi	17	20	0.05
	Multi	7	16	
Duration of pregnancy (weeks)	<12	7	8	0.05
	13-24	12	10	
	>24	5	18	

Table I shows that out of 60 women, 36 had anemia, Maximum women were seen in age group 21-30 years. 24 anemic had nuclear and 12 had joint family. Maximum anemic (18) were illiterate. 20 anemic had primi gravida and 16 had multigravida. 18 anemic had >24 weeks of duration of pregnancy. The difference was significant (P< 0.05).

Table II Assessment of outcome

Parameters	Variables	Normal	Anemic	P value
Maternal complications	Abortion	1	5	0.03
	Preterm labour	2	3	
	Pre- eclampsia	0	2	
	PPH	1	4	
Neonatal complications	LBW	3	8	0.01
	Prematurity	1	3	
	NICU admission	1	5	
	Death	0	3	

Table II, graph I shows that maternal complications were abortion in 1 normal and 5 anemic women, preterm labour in 2 normal and 3 anemic women, pre- eclampsia in 2 anemic and PPH in 1 normal and 4 anemic. Neonatal complications was LBW in 3 and 8, prematurity in 1 and 3, NICU admission in 1 and 5 and death in 3 normal and anemic women respectively. The difference was significant (P< 0.05).



Graph I Assessment of outcome

DISCUSSION

In South East Asia, anaemia is responsible for around 80% of maternal mortality and is the second most common cause of death among pregnant women in India.[6] In addition to being a known risk factor, anaemia has been linked to perinatal mortality and intrauterine growth retardation.[7,8] Obstetricians who treat anaemic women who present during labour face difficulties since even a small amount of blood loss during delivery could be fatal. Furthermore, if it is discovered early in pregnancy, remedial action can be taken.[9] The present study was conducted to assess prevalence of anemia during pregnancy and its impact on maternal and fetal outcome.

We found that out of 60 women, 36 had anemia, Maximum women were seen in age group 21-30 years. 24 anemic had nuclear and 12 had joint family. Maximum anemic (18) were illiterate. 20 anemic had primi gravida and 16 had multigravida. 18 anemic had >24 weeks of duration of pregnancy. Suryanarayana et al[10] estimated the prevalence of anemia among pregnant women and to determine its association with maternal and fetal outcomes. Four hundred and forty-six pregnant women were included. There was a significant overall improvement in the hemoglobin levels of pregnant during the follow-up (10.3–10.72 gm%). About 35.6% of the women had maternal or fetal morbidity. Anemia was one of the main pregnancy-related complications (62.3%), other complications include difficult labor (3%), postpartum hemorrhage, and preeclampsia 1.6% each abortions/stillbirths (3.5%). The fetal complications include low birth weight (25.5%) followed by premature delivery (0.2%) and birth asphyxia (0.5%).

We found that maternal complications were abortion in 1 normal and 5 anemic women, preterm labour in 2 normal and 3 anemic women, pre-eclampsia in 2 anemic and PPH in 1 normal and 4 anemic. Neonatal complications was LBW in 3 and 8, prematurity in 1 and 3, NICU admission in 1 and 5 and death in 3 normal and anemic women respectively. Mangla et al[11] found that the prevalence of anemia was 98% among the pregnant females in this region of rural India. Out of these 41.76% had mild anemia, 37.05% had moderate anemia, 15.88% had severe anemia and 3.29% very severe anemia according to ICMR classification of anemia. The mean hemoglobin level was found to be 8.845. The number of ANC visits in present pregnancy and whether the pregnant female had taken iron folic acid prophylaxis also were very significant variables in the determination of prevalence as well as the severity of anemia.

Bekele et al[12] found that pregnant women who received prenatal care had anaemia at a prevalence of 32.8%. Anaemia in pregnancy was found to be independently predicted by low family average monthly income (AOR = 4.0; 95% CI: 5.62-11.01), birth intervals less than two years (AOR = 3.1; 95% CI: 6.01, 10.23), iron supplementation (AOR = 2.31; 95% CI: 7.21, 9.31), and family size >2 (AOR = 2.8; 95% CI: 1.17, 6.81). In the study area, anaemia is shown to be a moderate public health issue. Pregnancy anaemia has been linked to low average monthly income, birth intervals of under two years, iron supplementation, and big family sizes.

The limitation the study is small sample size.

CONCLUSION

Authors found that there was high prevalence of anemia during pregnancy. Pregnancy-related severe anaemia is linked to poor maternal and perinatal outcomes. It is one of the indirect causes of maternal death that can be prevented. Adolescent education, routine prenatal exams, early detection and treatment, and avoidance of too-late, too-early, too-frequent, and too-many pregnancies are all important.

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