

Original Research

Prevalence of anemia during pregnancy and its impact on maternal and fetal outcome

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ABSTRACT:

Aim:To assess the prevalence of anemia during pregnancy and its impact on maternal and fetal outcomes. **Methodology:**Seventy-six women with singleton pregnancy were classified based on the WHO criteria. Parameters such as gravida, type of family, education status and duration of pregnancy was recorded. **Results:**Out of 76 women, 40 had anemia. There were 16 subjects in group I and 22 in group II in the age group <20 years, age group 21-30 years comprised 14 and 10 and >30 years 6 and 8 subjects respectively. Gravida was primi in 27 and 25 subjects and multi in 9 and 15 subjects in group I and II respectively. There were 11 illiterates in group I and 20 in group II. Joint family was seen in 28 in group I and 18 in group II and nuclear in 8 in group I and 22 in group II respectively. The duration of pregnancy was <12 years seen in 10 and 12 subjects, 13-24 weeks in 18 and 15 and >24 weeks in 8 and 13 subjects in group I and II respectively. A significant difference was observed (P< 0.05). The maternal complications were preterm labor in 1 in group I and 2 in group II, pre-eclampsia in 1 in group I and 3 in group II, PPH in 2 in group I and 5 in group II and abortion in 3 subjects in group I and 7 subjects in group II. A significant difference was observed (P< 0.05). Neonatal complications were low birth weight in 2 in group I and 5 in group II, NICU admission in 1 in group I and 4 subjects in group II, prematurity in 2 in group I and 6 subjects in group II and death in 0 in group I and 2 subjects in group II subjects. A significant difference was observed (P< 0.05). **Conclusion:**Pregnancy-related anemia was highly prevalent. Poor maternal and perinatal outcomes are associated with severe anemia due to pregnancy. It is one of the preventable indirect causes of maternal death. Important things to consider are adolescent education, regular prenatal checkups, early detection, and treatment.

Key words:Anemia, Maternal, Pregnancy

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INTRODUCTION

Anemia is a common condition that can occur during pregnancy. It is typified by a reduction in hemoglobin content or red blood cell count, which results in a lower blood's ability to carry oxygen. Many reasons, such as iron or folate insufficiency, vitamin B12 deficiency, chronic illnesses, etc., can result in anemia during pregnancy.¹Iron deficiency is the most frequent cause of anemia during pregnancy. Iron is more necessary during pregnancy to support the developing embryo and placenta.² Anemia may result if the mother's iron reserves are insufficient. The synthesis of red blood cells depends on folate.³ Anemia may arise from insufficient consumption of foods high in folate or inadequate folate absorption. The synthesis of healthy red blood cells requires

vitamin B12. Anemia can result from a lack of this vitamin, and those who are vegetarians or have specific gastrointestinal disorders may be more susceptible to it.⁴Chronic illnesses including renal disease or autoimmune disorders can affect red blood cell production or longevity, which can result in anemia. Anemia during pregnancy can cause weakness, exhaustion, pale skin, light-headedness, shortness of breath, fast heartbeat, and trouble focusing.⁵ It also increases the risk of low birth weight, stillbirth, early birth, miscarriage, and eventually perinatal death.⁶ The majority of iron is transmitted to the fetus during the second and third trimesters. Considering this, we performed this study to assess the prevalence of anemia during pregnancy and its impact on maternal and fetal outcome.

METHODOLOGY

A sum total of seventy- six singleton pregnancies admitted in labour room were enrolled in this prospective, observational study. All selected women voluntarily gave their written consent to participate in the study.

Demographic characteristics such as name, age, etc. was recorded in case sheet. The hemoglobin level(Hb) was 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. Subjects without anemia were put in group I and those with anemia in group II. Recorded were parameters including gravida, family type, level of education, and pregnancy duration. The expectant mothers received counseling regarding their Hb level, the significance of taking iron and folic acid supplements, foods high in iron that are readily available in the area, routine prenatal visits, etc. The resulting data were then statistically analyzed. A P value of less than 0.05 was deemed significant.

RESULTS

Table I Baseline characteristics

Parameters	Variables	Group I (36)	Group II (40)	P value
Age (years)	<20	16	22	0.02
	21-30	14	10	
	>30	6	8	
Gravida	Primi	27	25	0.05
	Multi	9	15	
Education	Illiterate	11	20	0.04
	Primary	15	9	
	Secondary	6	6	
	Higher	4	5	
Type of family	Joint	28	18	0.03
	Nuclear	8	22	
Duration of pregnancy (weeks)	<12	10	12	0.05
	13-24	18	15	
	>24	8	13	

It was found that out of 76 women, 40 had anemia. There were 16 subjects in group I and 22 in group II in age group <20 years, age group 21-30 years comprised 14 and 10 and >30 years 6 and 8 subjects respectively. Gravida was primi in 27 and 25 subjects and multi in 9 and 15 subjects in group I and II respectively. There were 11 illiterates in group I and

20 in group II. Joint family was seen in 28 in group I and 18 in group II and nuclear in 8 in group I and 22 in group II respectively. The duration of pregnancy was <12 years seen in 10 and 12 subjects, 13-24 weeks in 18 and 15 and >24 weeks in 8 and 13 subjects in group I and II respectively. A significant difference was observed (P< 0.05) (Table I)

Table II Assessment of maternal complications

Parameters	Group I	Group II	P value
Preterm labour	1	2	0.041
Pre- eclampsia	1	3	
PPH	2	5	
Abortion	3	7	

The maternal complications were preterm labor in 1 in group I and 2 in group II, pre- eclampsia in 1 in group I and 3 in group II, PPH in 2 in group I and 5 in group

II and abortion in 3 subjects in group I and 7 subjects in group II. A significant difference was observed (P< 0.05) (Table II, graph I).

Graph I Assessment of maternal complications

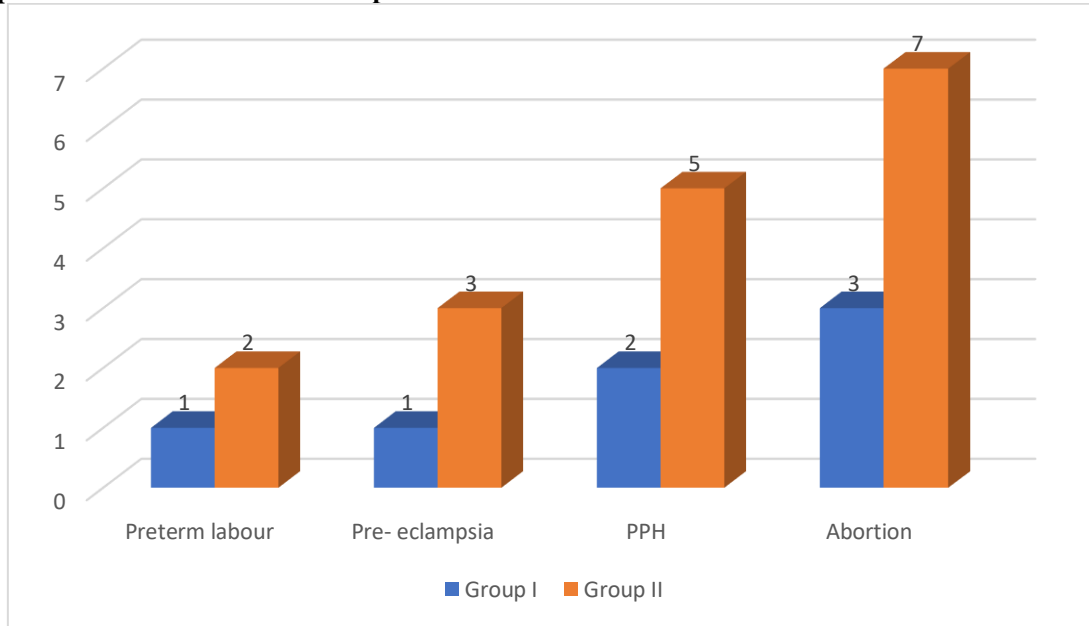


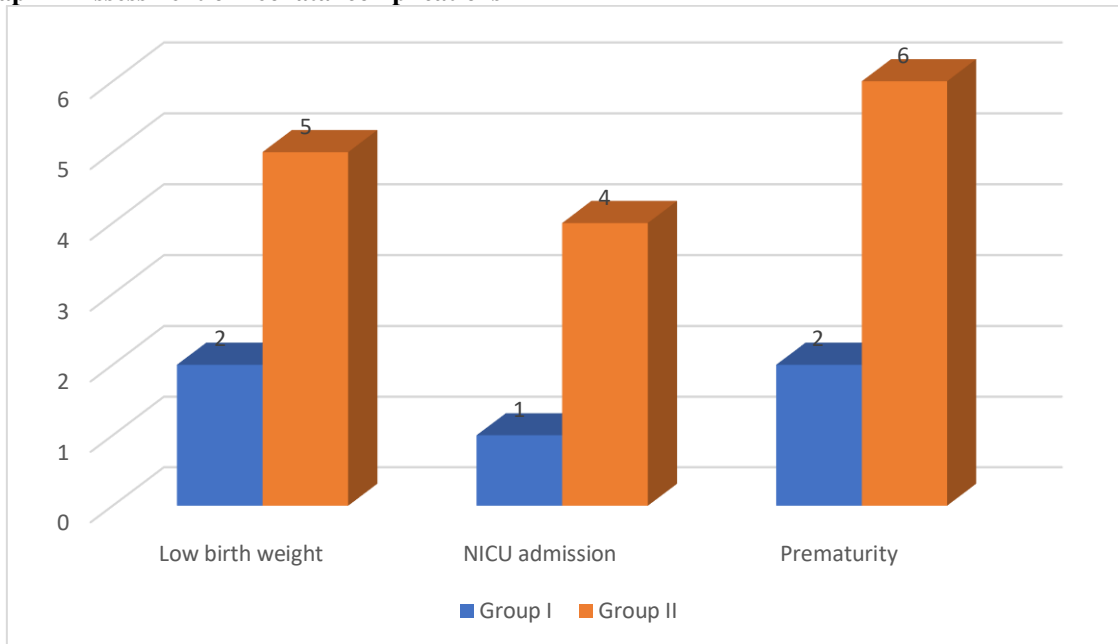
Table III Assessment of neonatal complications

Neonatal complications	Group I	Group II	P value
Low birth weight	2	5	
NICU admission	1	4	
Prematurity	2	6	
Death	0	2	

Neonatal complications were low birth weight in 2 in group I and 5 in group II, NICU admission in 1 in group I and 4 subjects in group II, prematurity in 2 in group I and 6 subjects in group II and death in 0 in

group I and 2 subjects in group II subjects. A significant difference was observed ($P < 0.05$) (Table III, graph II).

Graph II Assessment of neonatal complications



DISCUSSION

Anaemia is the second leading cause of death for pregnant women in India and accounts for over 80% of maternal deaths in South East Asia.^{7,8} Anaemia is

not just a recognized risk factor; it has also been connected to intrauterine growth retardation and perinatal mortality.^{9,10} Because even a modest quantity of blood loss during birth can be dangerous,

obstetricians who treat anemic women who appear during labor have challenges. Furthermore, corrective measures might be implemented if detected early in the pregnancy.^{11,12} Considering this, we performed this study to assess the prevalence of anemia during pregnancy and its impact on maternal and fetal outcome

It was found that out of 76 women, 40 had anemia. There were 16 subjects in group I and 22 in group II in age group <20 years, age group 21-30 years comprised 14 and 10 and >30 years 6 and 8 subjects respectively. Gravida was primi in 27 and 25 subjects and multi in 9 and 15 subjects in group I and II respectively. There were 11 illiterates in group I and 20 in group II. Joint family was seen in 28 in group I and 18 in group II and nuclear in 8 in group I and 22 in group II respectively. The duration of pregnancy was <12 years seen in 10 and 12 subjects, 13-24 weeks in 18 and 15 and >24 weeks in 8 and 13 subjects in group I and II respectively. Anaemia was shown to be 32.8% common in pregnant women who received prenatal treatment, according to Bekele et al.¹³ Iron supplementation, birth intervals shorter than two years, poor family average monthly income, and family size greater than two were revealed to be independent predictors of anemia during pregnancy. Large family numbers, iron supplementation, birth intervals shorter than two years, and low average monthly income have all been associated with pregnancy anemia.

It was observed that the maternal complications were preterm labor in 1 in group I and 2 in group II, preeclampsia in 1 in group I and 3 in group II, PPH in 2 in group I and 5 in group II and abortion in 3 subjects in group I and 7 subjects in group II. In this remote Indian region, 98% of pregnant women had anemia, according to research by Mangla et al.¹⁴ According to the ICMR classification of anemia, of these, 41.76% had mild anemia, 37.05% had moderate anemia, 15.88% had severe anemia, and 3.29% had very severe anemia. It was discovered that the mean hemoglobin level was 8.845. The frequency of antenatal care visits during the current pregnancy and the pregnant woman's use of iron folic acid prophylaxis were both very significant factors in determining the prevalence and severity of anemia.

In present study, neonatal complications were low birth weight in 2 in group I and 5 in group II, NICU admission in 1 in group I and 4 subjects in group II, prematurity in 2 in group I and 6 subjects in group II and death in 0 in group I and 2 subjects in group II subjects. The prevalence of anemia in pregnant women was assessed by Suryanarayana et al¹⁵ ascertained its correlation with outcomes for both the mother and the fetus. Included in the group were 446 pregnant women. During the follow-up, the pregnant women's hemoglobin levels showed a notable overall improvement. The rate of maternal or fetal morbidity was about 35.6% in these women. One of the most common pregnancy-related problems was anemia

(62.3%). Other problems included difficult labor (3%), postpartum hemorrhage, and preeclampsia (1.6%), as well as stillbirths and abortions (3.5%). Low birth weight (25.5%), preterm delivery (0.2%), and birth asphyxia (0.5%) are the most common fetal problems.

CONCLUSION

Pregnancy-related anemia was highly prevalent. Poor maternal and perinatal outcomes are associated with severe anemia due to pregnancy. It is one of the preventable indirect causes of maternal death. Important things to consider are adolescent education, regular prenatal checkups, early detection, and treatment.

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