



**A PROSPECTIVE STUDY ON EFFECT OF MODERATE AND SEVERE ANEMIA OVER
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MEDICAL RESEARCH**

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ABSTRACT

Introduction: Anemia is one of the major public health problem most common nutritional deficiency disorders affecting the pregnant women. The purpose of the study is to analyze the effect of moderate and severe anemia over pregnancy outcome. **Material and methods:** This study was prospective study was conducted on 100 patients with hemoglobin values < 10 gm/dl, moderate and severe anemia. **Results:** Majority of participants belong to belong to age group 20-24 years (46%) and lower class(44%). Almost 66% of participants with anemia were multigravida and 34% of them were primigravida statistically significantly. About (64%) of the participants with anemia underwent vaginal delivery and 36% underwent LSCS. LSCS was observed with severe anemia(62%) statistically significant. Preterm labour occurred in 16 patients, 10 patients(62%) had severe anemia and 6 patients(38%) moderate anemia. PPH was seen in 10 cases of which 60% patient had severe anemia. Post op infection and puerperial sepsis was seen equally in both moderate and severe anemia. Delayed wound healing was seen in 6 cases of which 67% patient had severe anemia. Cardiac failure occurred in 2 patient belonging to severe anemia. 20^ were LBW babies from moderate degree of anemia followed by low APGAR score <7(14%) among them 72% were severely anemic, 5% birth asphyxia, 5% intrauterine death and 3% IUGR respectively and statistically insignificant. **Conclusion:** Anemia in pregnancy is a preventable disease. It is more common among pregnant women who belonged to low socio-economic status, multiparity. Early detection through regular antenatal visits and proper management can lead to better maternal and fetal outcome. Emphasis on active participation in health checkup camps, several governmental and non governmental organizations and other initiatives can help preventing the same.

KEYWORDS: Anemia; Pregnant; Moderate Anemia; Severe Anemia;

INTRODUCTION

Anemia is one of the major public health problems in the developing world. More than 50% female in the world suffering from anaemia during their pregnancy.^[1-4] Developing countries like India has a big issue of anaemia in pregnancy and reported 87% prevalence of anemia in pregnancy.^[5]

It has a great impact on physical and neuro-psychological development, which further influence development of the nation. Iron deficiency anaemia during pregnancy leads to preterm birth, low birth weight and small-for-gestational age babies, and increases incidence of postpartum haemorrhage (PPH) and this the reason for the incidence of PPH is higher in India compared with the rest of the world.^[6-8] Groups like women of child bearing age, pregnant women, preterm and low birth weight infants, older infants and toddlers

and teenage girls are at higher risk of developing iron deficiency anaemia.

In India, anemia during pregnancy is a significant public health problem, with 45.7% of pregnant women in urban areas and 52.1% in rural areas having hemoglobin levels <11 g/dl.^[9] Iron deficiency Anemia contributes to more than 90% cases of Anemia complicating pregnancy being responsible for 19% of maternal deaths. Maternal Anemia is associated with increased incidence of Toxemia in pregnancy, Preterm labour, Atonic PPH, Adherent placenta, Delayed wound healing, Pre-eclampsia, Lactational failure in the mother and Prematurity, Low birth weight, Low APGAR score, IUGR and IUD in the newborn.

Children have low haemoglobin are at high risk of long term impairment in mental and motor development, lack of concentration, short attention span, easy distractibility,

increased susceptibility to infection and abnormal appetite (pica). Anaemia is defined by WHO as Haemoglobin (Hb) less than 11gm in pregnancy, and is divided into three degrees mild (10.9-9.0 gm %), moderate (8.9-7.0 gm %) and severe degree (<7.0 gm %)^[10] and we used these parameter in study. Many countries have made programmes of supplementing pregnant women with iron and folic acid with an aim that increasing the Hb levels has some beneficial effect. Few of the studies have also shown that increase in the Hb beyond a certain level could in fact have a negative outcome. Objective of the present study was to analyze the effect of moderate and severe anemia over pregnancy outcome.

OBJECTIVE

The purpose of the study is to analyze the effect of moderate and severe anemia over pregnancy outcome.

MATERIAL AND METHODS

This prospective study was done among 100 pregnant women who were found to be moderate and severe anemia and meeting inclusion and exclusion criteria visited at Department of Obstetrics and Gynecology in Navodaya Medical College Hospital and Research Centre, Raichur. Data collection was done after ethical permission from institutional ethical committee and informed consent of clients.

Inclusion criteria

1. All pregnant women with hemoglobin values < 10 gm/dl.
2. Booked cases.

Exclusion criteria

1. Patients not willing to participate in the study.
2. Pregnant women with mild anemia.
3. Pregnant women with history of Thalassemia, Sick cell anemia, Blood Dyscrasias disorders.
4. Pregnant women with known medical conditions like diabetes mellitus, cardiac disease, chronic renal disease, Polyhydromnios.

The investigations that were done on these subjects:

Complete blood count, blood grouping, Peripheral smear (for type of anemia), Reticulocyte count, stool for occult blood, ova & cyst, serum iron, TIBC, Serum Ferretin, Serum vitamin and B-12.

All subjects were analyzed in full details and Hemoglobin estimation done during their Antenatal visit. Detailed history was taken and details like socio-demographic information, past history of medical illness, menstrual history was collected. Anemia profile was sent. All the subjects were classified according to WHO criteria of moderate and severe degree of Anemia and were treated with either oral iron or intravenous iron or blood transfusion and carefully followed in the antepartum, intrapartum and postpartum periods. Finally, the modes of delivery, maternal and perinatal outcome were studied in all the study subjects. The data were recorded in an Excel sheet and descriptive analysis was performed, of which data are presented in the tables

RESULTS

A prospective study conducted in department of OBG, Navodaya Medical College and Research Center, Raichur on 100 patients with moderate and severe anemia who were meeting inclusion and exclusion criteria after taking the ethical committee clearance. All pregnant women with hemoglobin values < 10 gm/dl and booked cases were included in the study. Pregnant women with mild anemia, history of thalassemia, sickle cell anemia, blood dyscrasias disorders and known medical conditions like diabetes mellitus, cardiac disease, chronic renal disease, polyhydromnios were excluded from the study. Detailed history was taken and all the subjects were analyzed and Hemoglobin estimation done during their antenatal visit. Investigations included complete blood count, blood grouping, peripheral smear (for type of anemia), reticulocyte count, stool for occult blood, ova & cyst, serum iron, TIBC, serum ferretin and serum vitamin B-12.

Table 1 showed the maximum number of participants belong to age group 20-24 years (46%) followed by 25-29 years (17%), <=20 years (6%), 30-34 years (3%) and 35-39 years (1%) respectively.

Table 1: Clinico-social information of the study Participants(n=100).

		No. of patients	Percentage(%)
Age	<20	12	12
	20-24	46	46
	25-29	34	34
	>30	8	8
Socio economic status	Upper middle class	8	8
	Middle class	10	10
	Lower middle class	38	38
	Lower class	44	44

Socio-economic status was measured by BG Prasad classification maximum number of participants belong to participants belong to lower class (44%). Around 38%

participants belonged to lower middle class followed by middle class (10%) and upper middle class (8%).

Table 2 shows almost 66% of participants with anemia is statistically significantly ($p < 0.05$). are Multigravida and 34% of them were Primigravida. It

Table 2: Association between parity and degree of anemia.

Parity	Moderate		Severe		Total		P value
	NO.	%	NO.	%	NO	%	
MULTI	46	70	20	30	66	100	0.042
PRIMI	22	65	12	35	34	100	

Table 3 shows that about (64%) of the participants with anemia underwent vaginal delivery and 36% underwent LSCS. LSCS observed more among participants with severe anemia(62%) and this association was statistically significant ($p < 0.05$).

Table 3: Association between degree of anemia and mode of delivery.

Mode of delivery	Moderate		Severe		Total		P value
	NO.	%	NO.	%	NO	%	
Vaginal delivery	54	84	10	16	64	100	0.042
LSCS	14	38	22	62	36	100	

Table 4 shows that preterm labour had occurred in 16 patients, most of them had severe anemia 10 patients(62%) and moderate anemia 6 patients(38%). PPH was seen in 10 cases of which 60% patient had severe anemia. Post op infection and puerperal sepsis

was seen equally in both moderate and severe anemia. Delayed wound healing was seen in 6 cases of which 67% patient had severe anemia. Cardiac failure had occurred in 2 patient belonging to severe anemia.

Table 4: Association between degree of anemia and maternal outcome.

Maternal outcome	Moderate		Severe		Total		P value
	NO.	%	NO.	%	NO	%	
Pre term labour	6	38	10	62	16	100	0.231
PPH	4	40	6	60	10	100	
Post operative infection	3	50	3	50	6	100	
Delayed wound healing	2	33	4	67	6	100	
Peurperial sepsis	2	50	2	50	4	100	
Cardiac failure	0	0	2	100	2	100	
Normal	51	91	5	9	56	100	

Table 5 shows that low birth weight babies were more (20%) most of them were from moderate degree of anemia followed by low APGAR score < 7 (14%) among

which most of them were severely anemic(72%), birth asphyxia(5%), intrauterine death (5%) and IUGR(3%) respectively. Statistically not significant.

Table 5: Association between degree of anemia and fetal outcome.

Fetal outcome	Moderate		Severe		Total		P value
	NO.	%	NO.	%	NO	%	
Low birth weight	12	60	8	40	20	100	0.231
Apgar< 7	4	28	10	72	14	100	
Intra uterine death	1	20	4	80	5	100	
Birth asphyxia	2	40	3	60	5	100	
IUGR	1	33	2	67	3	100	
Normal	48	90	5	10	53	100	
Low birth weight	12	60	8	40	20	100	

DISCUSSION

Anemia is a most common issue in pregnant women in developing countries like India. Many similar studies observe variation in pregnancy outcome in anemic patients. In the present study 100 participants were studied and aimed at effect of moderate and severe anemia over pregnancy outcome. In present study, most of the cases belong to moderate degree of anemia(52%)

followed by, severe anemia(48%) Majority of the participants belonging to the age group of 20-24 years (46%). 100% of the participants were booked case.

The various parameters of the subjects were studied, analyzed and evaluated with the standard literature reading available. In present study, 52% moderate and 48% were severely anemic. Majority of the anemic study

subjects in the present study belonged to the age group of 20-24 years (46.5%) followed by 25-29 years(17%), ≤ 20 years(6%),30-34 years(3%) and 35-39 years(1%) respectively. This was comparable with the results of Chitan Upadhayay *et al.*^[11]

Low socio-economic status is said to predispose to anemia, poor nutrition being the leading cause of anemia. In the present study, 48% of the anemic women belonged to the low socioeconomic group while 100% of women of the study of Alli R *et al* belong to the low socioeconomic group.^[14] Findings of the present study were also comparable with Chitan Upadhayay *et al*^[11], in whose study 82% of anemic women and Shah Ravi Kumar *et al*^[12] 78.8% belonged to low socio-economic group suggesting a close relationship between low socioeconomic conditions and pregnancy anemia.

Effective and adequate antenatal care is important for early identification and treatment of anemia. In present

In the present study almost 64.0% cases were multi-gravida comparable to similar study by Shah Ravi Kumar *et al* with 46%.^[12]

Studies	Association of anemia with parity
Present study	Multigravida(64%)
Shah Ravi Kumar <i>et al</i> ^[12] (2020)	Multigravida(66.30%)

Out of 100 participants, 29% participants underwent lower segment cesarean section (LSCS) were anemic. Similarly, to a study by Chitan Upadhayay *et al*, in whose study 38% of anemic women went LSCS.^[11]

The maternal complications observed in this study were preterm labor (8%) , PPH (5%) , delayed wound healing (3%), perurperial sepsis (3%) and post operative

study 100% of women were booked cases. Anemia in pregnancy is more common in women of high parity due to frequent pregnancy and inadequate spacing. Mean spacing between births has an impact on the hemoglobin status of women.

Preterm labor(8%), PPH(5%), delayed wound healing and post-operative infections(3%) and fetal complications like Low APGAR score<7(12%), IUGR(5%), Low birth weight(5%) and IUD(1%) were the important maternal outcome in present study, which was comparable with the study of Sarin AR *et al* who observed that 31.2% women had preterm deliveries.^[13]

The present study in fetal outcome observed 12% babies had with low APGAR followed by IUGR (5%) and low birth weight babies (5%) respectively which was statistically significant which was comparable to study done by Shah Ravi Kumar *et al.*^[12]

infections (3%). And the that fetal outcome were measured in terms of condition of the baby at birth by AGAR scoring, weight of the baby at birth. Study observed that babies with low APGAR in anemic participants in this study is maximum(12%) followed by IUGR (5%) and low birth weight babies (5%) respectively which was statistically significant.

Maternal outcome	Present study	Shah Ravi Kumar <i>et al</i> ^[12] (2020)
	Pre term labour PPH Post operative infection Delayed wound healing Peurperial sepsis Normal	Preterm labour Postpartum haemorrhage Abruptio placentae Placenta praevia Postoperative fever & infection Cardiac failure Maternal mortality
Fetal outcome		
	Apgar score<7 Birth asphyxia Intra uterine death IUGR Low birth weight Normal	Apgar score <7 Low birth weight Intrauterine growth restriction Intrauterine fetal death Perinatal death Birth Asphyxia

The present study has highlighted the importance of considering maternal anemia as an indicator of adverse pregnancy outcome.

CONCLUSION

Anemia in pregnancy is a preventable disease. It is more common among pregnant women who belonged to Low socio-economic status, multiparity. Early detection

through regular antenatal visits and proper management can lead to better maternal and Fetal outcome. Emphasis on active participation in health Checkup camps, several governmental and non governmental organizations and other initiatives like Anemia Mukh Bharat, Pradhan Mantri Surakshit Matritva Abhiyan and educating pregnant female and their family members on early booking, iron rich diet, prophylactic iron

supplementation, Birth spacing and family planning can help preventing the same.

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