ANALYTIC STUDY OF SEVERE ANEMIA IN PREGNANCY

INTRODUCTION

Anemia is a major global public health problem and remains particularly prevalent among pregnant women in developing countries. India continues to have a high burden of anemia during pregnancy, with nutritional deficiencies, inadequate dietary iron intake, poor absorption, closely spaced pregnancies, infections, parasitic infestations, and hemoglobinopathies contributing to its occurrence. Iron deficiency is the most common cause, although deficiencies of folic acid and vitamin B12 may also contribute. Anemia during pregnancy is associated with adverse maternal and perinatal outcomes, including increased maternal morbidity and mortality, preterm birth, fetal growth restriction, low birth weight, and increased perinatal and neonatal mortality. Despite several national initiatives for anemia prevention and control, the condition remains a significant public health challenge. Therefore, the present study was undertaken to evaluate the medico-sociodemographic factors associated with anemia among pregnant women and to identify their independent significance through multivariate analysis.

AIMS AND OBJECTIVES

Aims and objectives of present study are:

- To study the prevalence and distribution of severe anemia in different demographic factor **in hospitalized pregnant women with severe anaemia (Haemoglobin lower than7gms %) at the time of delivery.**
- To study the effects of severe anemia in pregnancy.
- To study the fetomaternal outcome of severe anemia in pregnancy.
- To correlate various predictors of the outcome of pregnancy with severe anemia.
- To study management of severe anemia in pregnancy.
- To study various complications in cases of severe anemia.

MATERIALS AND METHODS

"ANALYTIC STUDY OF SEVERE ANEMIA IN PREGNANCY" was conducted in pregnant women visiting Department of Obstetrics and gynecology in a tertiary care hospital in during June 2024 to June 2026 satisfying the inclusion and exclusion criteria.**It is a**

prospective study aimed to analyze the characteristics of hospitalized pregnant women with severe anaemia (Haemoglobin lower than 7 gms %) at the time of delivery and to find out feto-maternal outcome.

Inclusion criteria:

- **All pregnant anemic women in labour** with Hb less than 7gm% on admission and gestational age more than 28 weeks of pregnancy.

Exclusion criteria:

- Pregnant women with severe anemia prior to onset of labour
- Pregnant women with severe anemia at the time of delivery due to acute bleeding with antepartum hemorrhage or trauma were excluded.

Methods:

Of the total 19568 delivered patients during the study period, I had selected all the women who fulfilled the inclusion criterion. A thorough history was elicited from those women chosen for study. Pregnancy details regarding Antenatal Care (ANC), significant past and family history were noted. The other complications associated with anemia were noted. Patients were followed further by a thorough general physical, systematic and obstetrics examinations.

Data collected included socio-demographic characteristics (age,parity, residence, education and antenatal care), maternal outcomes (preterm labour, preeclampsia, antepartum haemorrhage and cardiac failure).The following parameters were observed in the women. General conditions of the mother at the time of delivery, Signs of cardiac failure, Details of labour: 1st stage, 2nd stage and 3rd stage, amount of blood loss, weight of the placenta, establishment of lactation, rate of uterine involution and mortality.

This was done as per the Proforma prepared for the study.

All the study subjects were carefully followed during intrapartum and postpartum periods. These women, in labour were carefully monitored and progress of labour was noted, for any obstetric or medical complication was carefully watched for. Finally the modes of delivery, operative intervention, maternal outcome were studied in all the study subjects. New symptoms were further noted and women were subjected to clinical examination to

detect the complications of anemia at the earliest. Blood transfusion was the commonest mode of treatment resorted in the severe anemia cases. Proper care was exercised to prevent the complications of blood transfusion.

The perinatal outcome (live birth, still birth, intrauterine death, fetal growth Restriction), the low birth weight of newborns and their Apgar score at 1 and 5 min were recorded. The neonate was attended by the neonatologist to detect the effects of severe anemia. Outcome was judged by analysis of above data. Equal attention was given to the women during the post-partum period to detect the complications from severe anemia as early as possible. Breast feeding was encouraged in immediate post-partum period. Emphasis was laid on maintenance of personal hygiene and early ambulation was given to avoid complications in the puerperium.

Parous women were counseled regarding the need for family planning method and were asked to follow up at a later date for the same. Primiparous women were explained the importance of spacing. Advice was given regarding the need for continuous use of iron supplements for minimum period of 6 months in post-partum period. Patients were followed up regularly and then discharged from the hospital.

OBSERVATION AND DISCUSSION

This study aimed to analyze the characteristics of hospitalized pregnant women with severe anaemia (Haemoglobin lower than7gms %) at the time of delivery and to find out feto-maternal outcome. It is a prospective study conducted during June 2024 to June 2026. Severe Anemia in pregnancy is an important cause of maternal and fetal morbidity and mortality. Out of 19568 deliveries, 228 were severely anemic on admission with labour pains. Information of cases under study was arranged in a systemic manner in MS Excel sheet. Appropriate statistical analysis was done.

TABLE-1: PREVALENCE OF SEVERE ANEMIA INPREGNANT WOMEN AT THE TIME OF DELIVERY:

Study	**Prevalence (%)**
Present Study	1.1%
Dr. B. Nirmala Devi**Error! Bookmark not defined.**	2.8%
Marhatta R[i]	2.2%
Srinivas rao and Srikanth[ii]	3.4%
Singhal et al[iii]	5.7%

Total Number of deliveries during the study was 19568 and out of it, 1.1% pregnant women were severe anemic at the time of delivery.This study is showing 1.1% prevalence rate because majority of women visiting this hospital were from muslim community taking mixed diet as Mixed diet has higher iron content.

Majority of the women in this study belonged to age group 20-24 years, the percentage being 45.6% which is comparable with the result of Nirmala Devi et al**Error! Bookmark not defined.** Manisha et al**Error! Bookmark not defined.**, Moushumi Biswas et al**Error! Bookmark not defined.** studies. 78.1% women had anemia in the reproductive age group (20-29 years), thus affecting the reproductive capacity of the women and affecting the fetus. Repeated pregnancy and multiparity leads to severe anemia in this age group in the pregnant women. Also 15.8% women are in 30-34 year age group because muslim patients are more in this study having multiparity.

In my study, 64% women with severe anemia were illiterate and 36% women were literate, which is comparable with Rameshwari et al**Error! Bookmark not defined.** study. This reflects that level of illiteracy has direct relationship with anemia, hygiene, diet, ANC visits, iron supplementation, spacing, contraception and thus, maternal and perinatal complications.

TABLE-2 : SEVERE ANEMIA IN REGISTERED AND EMERGENCY CASES

	NO. OF CASES	**PERCENTAGE (%)**	**Rameshwari et al**Error! Bookmark not defined.

REGISTERED	70	30.7 %	24%
EMERGENCY	158	69.3%	76%
TOTAL	**228**	**100%**	**100%**

From the above table, 69.3% cases were emergency cases and 30.7% registered cases, which is comparable with Rameshwari et al**Error! Bookmark not defined.** study. In this study patients from low socio economic class are more (89.5%) having poor antenatal care and less number of antenatal visits.This reflects that in our country, pregnant women are brought to hospital when they have severe degree of symptoms.

In my study, women were divided into upper, middle and lower class according to Modified Kuppuswamy's classification.89.5% women were from lower class, 10.5% women were from middle class and no women from upper class. Socio economic status of severe anemic pregnant women is compared with Chintan et al**Error! Bookmark not defined.**, Sangeeta et al**Error! Bookmark not defined.**, Nirmala Devi et al**Error! Bookmark not defined.** studies and it is comparable to this study. Socio economic status has direct correlation with literacy, nutritional status, number of antenatal visits and awareness of antenatal care and importance of birth spacing. So lower socio economic class women are more likely to be anemic.

Numbers of Antenatal visits during pregnancy affect hemoglobin level of pregnant women, Irregular and less antenatal visits during pregnancy increase level of anemic status. In my study, 36.8% women had never taken antenatal visits elsewhere, 34.2% women had taken one antenatal visit anywhere while 29% had taken two antenatal visits. None of them had taken 3 or more visits in my study. This reflects direct relationship of antenatal checkups with the anemia. Most important factor that may be responsible for the lack of antenatal checkup is ignorance and illiteracy. Schedule for antenatal visits includes the first visit as early as possible then return visits once every month till 7^{th} month, once every 2 week till the 9^{th} month and once every week during the 9^{th} month till labour.

In this study, Primi women were 30.7%. This table shows that majority of the women (69.3%) were multigravida, this is due to repeated pregnancies in short interval of time, lack of contraception and poor diet and sanitation. Thus, as the parity increases the incidence of anemia also increases. In this study it is observed that majority of anemic women belonged to higher parity, which is compared with studies of Satyanarayan et al[iv] 74% and Nirmala et al**Error! Bookmark not defined.** study 65%. Anemia in pregnancy is high in high parity as

many pregnancies are occurring too frequently and decreased spacing leading to anemia. At least two - three years are required for spacing to replenish the iron stores lost during pregnancy and lactation.

TABLE-3: SPACING BETWEEN LAST PREGNANCY AND THIS PREGNANCY IN SEVERE ANEMIA

SPACING YEAR	**NO. OF CASES**	**PERCENTAGE (%)**	**Rameshwari et al[Error! Bookmark not defined.]**	**Khandait DW et al[v]**
< 2 YEAR	110	69.6%	70.0%	55.9%
>2 YEARS	48	30.4%	30.0%	44.1%
TOTAL	**158**	**100**		

In this study, out of 228 pregnant women, 70 women were Primi gravida while 158 were multigravida women. Out of 158 women, 110 (69.6%) had spacing between last pregnancy <2 years, and 48 (30.4%) women had spacing of >2 years. Spacing between births has an impact on hemoglobin status and iron storage of pregnant women. This study is comparable with Rameshwari et al**Error! Bookmark not defined.**& Khandait DW et al[38] studies. Inadequate breast feeding to baby and lack of education and lack of acceptation of contraceptive methods leads to less spacing years between pregnancies. Government of India has implicated programme for Postpartum Intrauterine Contraceptive Devices (PPIUCD), Inj. DMPA (Depot Medroxy Progesterone Acetate) for spacing in between pregnancy. So we have to counsel pregnant women for contraceptive methods since antenatal period to make them sensitive to this issue.

In my study, 33.4% women had not taken any iron / folic acid tablet during antenatal period, 46% women had taken tablets for 1 month, 20.2% women HAD taken tablets for 2 months and 0.4% women had taken tablets for ≥3 months. Inadequate iron – folic acid tablets taken during antenatal period was responsible for anemia in these pregnant women. Government of India has recommended iron-folic acid tablets should be taken for atleast 100 days during pregnancy.

In this study, out of total women 37.7% women were vegetarian and 62.3% women were taking mixed diet. Even in women taking mixed diet, due to low socio-economic status most of women take vegetarian diet, they take Non vegetarian diet only occasionally. So severe anemia was seen in these women.

TABLE-4: MEDICAL CONDITIONS AND ILLNESS ASSOCIATED WITH SEVERE ANEMIA

ASSOCIATED CONDITION	NO. OF CASES	PERCENTAGE (%)
PIH	67	29.3%
JAUNDICE	14	6.1%
THROMBOCYTOPENIA	14	6.1%
GESTATIONAL DIABETES	2	0.9%
THALLESEMIA MINOR	2	0.9%
SICKLE CELL ANEMIA	2	0.9%
CARDIAC	0	0

The above table shows that pregnancy induced hypertension has the most common associated condition with anemia accounting for 29.3% of the cases and Jaundice accounting for 6.1% of the cases. These conditions increased the morbidity in these women. Pregnancy induced hypertension causes increased chances of Growth restriction, low birth weight baby, preterm labour and also increase morbidity of pregnant women.

Peripheral blood smear examination is the simple, inexpensive and reproducible method for diagnosis of the type of anemia. Majority of the women 91.2% in this study had Microcytic hypochromic anemia as compared to diamorphic anemia 7.0%. Hence, iron deficiency anemia is the commonest nutritional anemia. So, the majority of anemic patients are amenable to prevention by just provision of adequate antenatal checkup, dietary advice and supplementation of iron and folic acid.

During postpartum period, out of 228 women, 5.2% women had presence of hookworm infection in stool sample. Tablet Albendazole 400mg single dose orally was given for it. Poor hygiene and improper cooking leads to hookworm infestation in women.

Majority of the women 70.1% in this study had vaginal delivery and 29.9% had undergone LSCS. Normal Vaginal delivery is preferred in case of severe anemia. Caesarean Section is mainly done for either fetal or obstetrical indication. This percentage of vaginal delivery is comparable with Nirmala Devi et al**Error! Bookmark not defined.**(85.0%), Manisha et al**Error! Bookmark not defined.**(71.4%),Marhatta R [i] (78.0%) study.

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