



FETO-MATERNAL OUTCOME IN PREGNANCY WITH ANAEMIA IN RELATION TO MATERNAL HAEMOGLOBIN LEVEL

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ABSTRACT Anaemia is a major health problem worldwide, especially among the poorer segments of population in developing countries like India. Anaemia means deficiency of haemoglobin in blood which can be caused by either few red blood cells or too little haemoglobin in the cells. It is associated with maternal complications like intercurrent infection, pre-eclamptic toxemia, cardiac failure, postpartum hemorrhage and maternal mortality and fetal complications include - IUGR, preterm birth, perinatal morbidity and mortality.

METHODS- This time bound prospective study was carried out in Gauhati Medical College and Hospital (GMCH), Guwahati, Assam, in 300 pregnant women and maternal and perinatal outcome were evaluated in different degrees of anaemia in the year 2019, July to 2020, June. Out of 300 pregnant women, 110 pregnant women were non anaemic, taken as control group and 190 pregnant women were anaemic, taken as study group, and pregnancy outcome were analyzed comparing the two groups.

Results - It was found that various maternal and perinatal complications were significantly high in anaemic group in comparison to non-anaemic mother. Also, it was found that maternal and perinatal morbidity and mortality increases with severity of anaemia.

Conclusion - The maternal mortality, morbidity and perinatal mortality and morbidity are still high in anaemia in pregnancy.

KEYWORDS : Anaemia, pregnancy, haemoglobin, maternal, perinatal.

INTRODUCTION

Anaemia is a major health problem worldwide, especially among the poorer segments of population in developing countries like India. Anaemia means deficiency of haemoglobin in blood which can be caused by either few red blood cells or too little haemoglobin in the cells. The presence of anaemia is established by laboratory confirmation of subnormal haemoglobin level. The World Health Organization (WHO) defines anaemia in pregnant women as haemoglobin level below 11 gm/dl. The Centre for Disease Control (CDC) defines anaemia as haemoglobin level less than 11 gm/dl in 1st and 3rd trimester and less than 10.5 gm/dl in 2nd trimester.^{1,2,3,4}

This commonest haematological disorder may occur in pregnancy and along with its associated risks, has remained one of the commonest complication of pregnancy all over the world even today. In India, where some social customs like early marriage, teenage pregnancy, ignorance to female health, short spacing between pregnancy, repeated pregnancy and poverty are existing particularly in rural areas. The other common factors responsible are poor dietary habits, lack of education, poor socio-economic status, poor nutritional status, various gastro-intestinal problems and various parasitic and helminthic infestations. Pregnancy as it advances further impairs maternal erythropoiesis and aggravates anaemic state as the fetus competes for the available nutrients. Hence most of the women initially bordering on anaemia will become anaemic more rapidly as pregnancy advances.^{5,6,7}

METHODOLOGY

This study was carried out in the Department of Obstetrics and Gynecology, GMCH, Guwahati, Assam, from 1st July 2019 to 30th of June 2020, with the following objectives-

- To study the occurrence of different degree of anaemia in the patients attending GMCH.
- To analyze the effect of different degree of anaemia in maternal and perinatal outcome.

All pregnant women in 3rd trimester attending OPD as well as IPD were included. The patients selected were divided into four groups by using the ICMR classification of anaemia as following -

- Control group - Patients with haemoglobin levels >11 gm/dl.
- Mild anaemic group - haemoglobin levels 10-10.9 gm/dl.
- Moderately anaemic group - haemoglobin levels 7 - 9.9 gm/dl.
- Severely anaemic group - haemoglobin <7 gm/dl.

Patients were studied in detail regarding age, literacy, socio economic

status, parity, interval between pregnancy, menstrual history, any significant past history. Socio-economic status of the patients was determined on the basis of Modified Kuppuswamy Socio-Economic Scale-2019. General physical examination, systemic examination, obstetric examination was done. Also, all cases were monitored throughout the labour with regard to maternal and fetal status till discharge from hospital.

RESULTS

Obstetric behavior and feto-maternal outcome of the anaemic patients were studied and compared with the non-anaemic group.

It was found that incidence of anaemia was 63.3%. Amongst the anaemic women, 76(40%) were mildly anaemic, 68(35.78%) were moderately anaemic, and 46(24.21%) were severely anaemic. A large percentage of the anaemic patients were from rural areas and were unbooked. The incidence of anaemia is higher in the patients belonging to lower socio-economic groups. The p value is <0.01(0.000).

The incidence of post-partum complications was much higher in the anaemic group compared to non anaemic group. It was found that, out of 110 cases, no maternal death was reported in the non anaemic group. In the anaemic group, out of 190 anaemic women, 13 maternal deaths (6.84%) were reported. All the cases who developed anaemic heart failure belonged to the severely anaemic group. The Hb level of all fatal cases were below 5 g/dl. The p value is <0.01 (0.000).

There was a very high incidence of preterm deliveries in the anaemic group compared to low incidence in the non anaemic group. It was also evident that the incidence of preterm deliveries was very high in the severely anaemic group compared to mild and moderately anaemic group. The p value is <0.01(0.000). Also, the incidence of LBW babies was higher in the severely anaemic group. The p value is <0.01(0.000).

It was seen that out of 190 babies, 41 babies died. 18 babies were still born and 23 babies died subsequently after birth and in early neonatal period. The total perinatal mortality was 21.35%. The p value is <0.01(0.000). Thus, perinatal mortality has strong association with maternal anaemia.

DISCUSSION

In our study, an attempt was made to discuss the incidence, various complications during labour and puerperium and feto-maternal outcome in anaemic mother in comparison with those of non anaemic

mothers.

The incidence of anaemia in the present study was 63.3% with severe anaemia 24.21%.

Table – Showing The Incidence Of Anaemia In Different Studies

Author	Year	Percentage
NFHS-3	2005-06	58
F U Ahmed	2006	84.9
JB Sharma	2010	56
NFHS-4	2015-16	50
Present study	2019-20	63.3

Thus, in the present study, total incidence of anaemia is comparable to other studies, but the incidence of severe anaemia comes down to 24.21% which may be due to improvement of obstetrics health care service and female literacy. The incidence of anaemia was found to be more in the unbooked cases especially from rural areas with low socio-economic status. This may be due to the fact that early booking and regular antenatal care helps in the early detection, treatment and prevention of anaemia. Judiath A Noronha et al (2005-2006) in his study at Udupi district of Karnataka reported that 65.2% of the anaemic patients belong to low socio-economic status.⁸ Study by Priyanka Sarma, Dr Seema Mehta (2011-12) clearly shows that unfavourable socio economic factors are the major causes and barriers for prevention of anaemia during pregnancy.^{9,10}

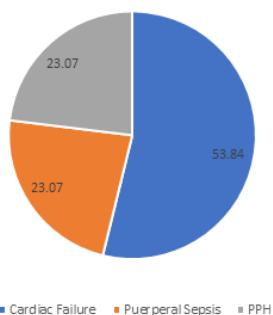
A very high incidence of preterm labour was noted in the anaemic women in comparison to low incidence in the non anaemic group. The cross sectional study from Jharkhand, India (2016-2017) describes that anaemia and its severity significantly influences preterm and low birth deliveries and all the stratified anaemia is strongly associated with preterm birth, where as severity of anaemia is strongly associated with LBW.¹¹

It was observed that perinatal mortality has strong association with maternal anemia. Intrauterine anoxia was the probably cause of stillbirth in most cases and prematurity and low birth weight were the main causes of neonatal death. A cohort study in 1007 pregnant women who delivered in the 5 medical colleges of Assam from January to June 2015 reveals that maternal anaemia is associated with increased risk of PPH, LBW, small for gestational age babies and perinatal death.¹²

Toxaemia of pregnancy was found more in the severely anaemic group (34.78%), the p value is <0.01(0.000). So, severe anaemia has strong association in the development of toxemia of pregnancy. A high incidence of sepsis in anaemic mothers has showing a distinct association between severe anaemia and sepsis. In the present study, 7 cases had PPH of which 3 patients died which signifies that anaemic mother can't withstand blood loss. It has long been considered that anaemia increases the risk of PPH in terms of uterine atony. A study by Kaima A Frass (2015) supports the association between anaemia and risk of PPH.¹³

There was 13 maternal deaths in the anaemic group. All the fatal cases were from the severely anaemic group. Out of the 13 maternal death, 7 were due to anaemic heart failure, 3 were due to puerperal sepsis and 3 were due to PPH. This high mortality is due to the fact that a large proportion of these patients, presented as emergency admission with severe anaemia at the time of labour and delivery when it is often too late and even the utmost efforts of the obstetricians may fail to save the life of the patient.

Fig - Showing the causes of Maternal Death



CONCLUSIONS

In the developing countries like India, the maternal mortality, morbidity and perinatal mortality and morbidity are still high in anaemia in pregnancy and the present study carried out in our institution also shows the similar incidence.

Adequate family planning services, regular antenatal services, regular supplementation of iron and folic acid tablets, early diagnosis, treatment and referral to higher center where specialist services and blood transfusion facilities are always available is mandatory to reduce the perinatal and maternal mortality. Apart from the above measures, a comprehensive public health policy should be developed including preventive, promotive, curative measures to address the health and nutritional needs of the pregnant women and ensure every pregnancy ends up in a healthy mother with a healthy baby.

Ethics Committee Approval Ethics committee approval was received for this study from institutional ethics committee.

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