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Anaemia among pregnant women and its outcome: A prospective study

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Abstract
Introduction: The purpose of this study was to prospectively evaluate the prevalence of anaemia in a pregnant women and to observe the maternal and perinatal outcomes in patients who were anaemic.
Aims and objectives: To find out prevalence of anaemia and to find out the relationship between maternal and perinatal outcomes among women who are anaemic.
Materials and Methods: This study was done among pregnant women attending antenatal opd at sree mookambika institute of medical sciences, kulasekharam. Blood samples for haemoglobin estimation was taken and classified accordingly as mild, moderate and severe anaemia. Outcome was measured in terms of preterm deliveries, mode of delivery and NICU admissions.
Results: Out of 47 antenatal mothers who were anaemic, 14.9% of antenatal mothers contributes to anaemia in the first trimester, 53.2% in second trimester, 31.9% were diagnosed in 3rd trimester. Prematurity and low birth weight was seen among 29 babies born to antenatal mothers which is about 61.7%, out of 47 antenatal mothers, 24 antenatal mothers underwent LSCS, 23 of them had normal vaginal delivery. Prematurity and low birth weight are common in anaemia complicating pregnancy.
Conclusion: Anaemia is one of the most common nutritional deficiencies affecting the pregnant women in developing countries. Anaemia during pregnancy is commonly associated with poor pregnancy outcome and can result in complications that threaten the life of both mother and fetus. Hence it is recommended that primary health care has to be strengthened. Prevention, early diagnosis and treatment of anaemia in pregnancy has to be given priority to reduce the fetomaternal morbidity.

Keywords: Low birth weight, anaemia, preterm

Introduction
Anaemia is one of the most common nutritional deficiency disorder affecting pregnant women, prevalence in developed countries is 14%, in developing countries it is 51% and in India it varies from 65% to 75% [1]. Anaemia prevalence is highest in preschool children, reproductive age women and women who are pregnant. While etiology is multifactorial, deficiency in iron is the most commonly recognised nutritional cause. Anaemia is defined by WHO as haemoglobin levels of < 11g/dl or haematocrit of < 33%.It is defined as a value of <5th percentile of distribution of haemoglobin or haematocrit in a healthy reference population based on the trimester of pregnancy. It is classified accordingly as <11g/dl in first trimester, <10.5g/dl in second trimester, <11g/dl in third trimester [2]. In normal pregnancy there is an increase in blood volume which results in associated hemodilution. Although RBC mass increases during pregnancy, plasma volume increases more, resulting in relative anaemia, this results in physiologically lowered haemoglobin level, haematocrit and RBC count.
WHO classified anaemia as mild (9 – 10.9g/dl), moderate (7-9g/dl), severe (<7g/dl), very severe (<4g/dl). Iron deficiency anaemia during pregnancy is a known risk factor for preterm birth, low birth weight and small for gestational age babies and increases the risk of postpartum haemorrhage [3]. Anaemia in early pregnancy was found to be associated with increased risk of PROM, exposure in late pregnancy is associated with reduced risk of spontaneous preterm birth. Hence the early diagnosis and treatment of mild anaemia prevents more severe forms of anaemia resulting in fetomaternal morbidity

Aims & objectives
1. To find out the prevalence of anaemia among pregnant women
2. To find out the association of anaemia with maternal and fetal outcomes

Materials and Methods

A prospective observational study was conducted among 150 pregnant women who came for antenatal checkup. All the pregnant women irrespective of the trimester attending the OPD of Department of Obstetrics and Gynaecology, Sree Mookambika Institute of Medical Sciences who met the inclusion and exclusion criteria during the period from May 2018 to May 2019 was enrolled into the study. All pregnant women with singleton pregnancy were included in the study and those having haemoglobinopathies, renal disorder were excluded. The study was started after obtaining the clearance from institutional research and institutional ethical committee and enrolled 150 pregnant women. The purpose of the study was explained before getting informed consent. Privacy was ensured during the study. A detailed history and clinical examination along with antenatal check up was done. Haemoglobin estimation was done in the first antenatal visit and the patient was followed up in the subsequent visits and haemoglobin estimation was done. Both maternal and perinatal outcome was noted. Details include maternal age, parity, interpregnancy interval, gestational age, height, weight, BMI, mode of delivery, birth weight were included. Haemoglobin estimation was done and maternal and fetal outcomes observed in those who are diagnosed anaemic.

Methods used to measure the quantitative parameters

Haemoglobin estimation was done and degree of anaemia observed according to WHO guidelines[1]

Socioeconomic status was assessed using BG Prasad socioeconomic status scale [12].

Data entry and analysis

Data was entered in Microsoft excel spread sheet 2013 and was analysed by sps version 20.0

Descriptive statistics including Mean, Standard deviation and 95% confidence interval were calculated. Chisquare test was used to find out the associations.

Observations and Results

A prospective observational study was conducted among 150 antenatal mothers attending the OPD of Department of OBG. Among the 150 antenatal mothers majority of them belong to upper lower socioeconomic status (70%). Mean age of the study participants was 26.69 years with a standard deviation of 4.065.

Table 1: Severity of Anaemia

Severity	Frequency	Percentage (%)
Mild	20	42.5
Moderate	17	36.2
Severe	10	21.3

Out of 47 antenatal mothers, 20 of them had mild anaemia which is about which is about 42.5 %, 17 (36.2%) had moderate anaemia, 10 had severe anaemia which is about 21.3%.

Table 2: Trimester Wise Distribution of Anaemia

Trimester	Frequency	Percentage (%)
First	7	14.9
Second	25	53.2
Third	15	31.9

Out of 47 antenatal mothers 7 antenatal mothers were diagnosed anaemic in 1st trimester which is about 14.9%, 25 antenatal women were diagnosed at 2nd trimester which is about 53.2%,31.9%(15) were diagnosed anaemic in 3rd trimester Among 45 antenatal mothers,35 were multigravida and 12 were primigravida. Out of 47 antenatal mothers delivered 29 babies were low birth weight and 18 were of normal birth weight and there was a statistically significant association with low birth weight and anaemia (p<0.05).Out of 47 antenatal mothers,24 delivered by lower segment caesarean section and 23 delivered normally. The study found out that there was no statistically significant association between mode of delivery and anaemia.

Discussion

The present study was done among 150 antenatal mothers.147 mothers were followed up till delivery and 3 of them lost to follow up. Out of them 47 antenatal mothers had anaemia. 20 of them had mild anaemia which is about which is about 42.5 %, 17(36.2%) had moderate anaemia, 10 had severe anaemia which is about 21.3%.

Out of 47 antenatal mothers 7 antenatal mothers were diagnosed anaemic in 1st trimester which is about 14.9%, 25 antenatal women were diagnosed at 2nd trimester which is about 53.2%, 31.9%(15) were diagnosed anaemic in 3rd trimester which is comparable to the study done by Nair M, Chaudhury SS [3]., *et al*. in which 28% of women diagnosed anaemic in first trimester, 37% in second trimester and 30% in third trimester.

Among 45 antenatal mothers, 35 were multigravida and 12 were primigravida which is comparable to the study done by Suryanarayana R [2]., *et al*., showing 30% of the anaemic mothers are primi and 70% of them are multigravida

Various studies showed that there was a significant association between preterm labour and low birth weight. In this study, prematurity and low birth weight was seen among 29 babies born to antenatal mothers which is about 61.7 % which proved to be statistically significant. Out of 47 antenatal mothers, 24 underwent LSCS, 23 of them had normal vaginal delivery.

Conclusion

High prevalence of anaemia in pregnant women indicates that anaemia continues to be a major health problem in rural areas of India. Anaemia in pregnancy increase the maternal and fetal risks. Parity, socioeconomic status, female literacy were important risk factors contributing for anaemia in a pregnant women. Maternal anaemia is also associated with increased risk of postpartum haemorrhage, low birth weight, small for gestational age babies and also perinatal death. To improve maternal and fetal outcome it is recommended that primary health care has to be strengthened, emphasising the importance of consumption of iron and folic acid in pregnancy.

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