

NEONATAL OUTCOME IN ANEMIC MOTHERS: A PROSPECTIVE STUDY

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BACKGROUND: Sepsis is the commonest cause of neonatal mortality .It is responsible for 30-50% of neonatal deaths in developing countries. Anemia during pregnancy is highly prevalent in India. Anemia in pregnancy has adverse effects on maternal and fetal health. Obstetrical complications like low birth weight babies, IUGR, increased rate of preterm deliveries & increased perinatal mortality are known. **OBJECTIVES:** Primary: To find relation between maternal anemia and proven neonatal sepsis. Secondary: To find long term morbidity and mortality of babies born to anemic mother. **METHODS:** The study was carried out in the Department of Pediatrics and Obstetrics and Gynaecology, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore for a period of two years. A prospective randomized study conducted on 200 pregnant women who were found to be anaemic. All subjects were analyzed in full details and hemoglobin estimation done during 1st visit, at 30th week and 36th week of gestation. Blood cultures were done in all the babies admitted to NICU for various reasons. **RESULTS:** The incidence of mild anaemia 29.5%, moderate anemia 53% and 17.5% severe anaemia was noted in mothers. Out of total 200, 194 were liveborn and met the inclusion criteria, 20% were preterm, 28% IUGR, 51 babies(25 %) required NICU admission due to various reasons out of which 9% developed proven sepsis. **CONCLUSION:** Anaemia in pregnancy continues to be a major problem in developing countries with maternal and fetal complications and neonatal sepsis was found to be indirectly associated with maternal anaemia.

KEYWORDS: Neonatal Sepsis, Maternal Anaemia ,Perinatal outcome

INTRODUCTION: Anaemia is medical problem that is frequently diagnosed and treated. The thought of a growing foetus in the mother's womb, indeed is nature's way of expressing the attributes of motherhood.¹

Women of child bearing age, pregnant women, preterm and low birth weight infants, older infants and toddlers and teenage girls are at greatest risk of developing iron deficiency anaemia. Children with iron deficiency 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).²

Some of the adverse effects of anaemia on the fetus were observed like fetal growth restriction (FGR), Preterm birth and Intrauterine fetal deaths due to severe placental insufficiency. The incidence of still birth and preterm births have been found to decrease if iron therapy has been administered before 30 weeks of gestation.

Long term effects: Studies have shown that severe anaemia in the mother may result in behavioral abnormalities in children and reduced cognitive skills and impaired schooling later. This is said to be due to deficiency of chemical mediators in the fetal brain as a result of maternal iron deficiency.

AIMS AND OBJECTIVES: Primary: To find relation between maternal anaemia and proven neonatal

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complications. Secondary: To find long term morbidity and mortality of babies born to anaemic mothers.

METHODS: The study was carried out in the Department of Pediatrics and Obstetrics and Gynaecology, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore for a period of two years. A prospective randomized study conducted on 200 pregnant women who were found to be anaemic. All subjects were analyzed in full details and hemoglobin estimation done during 1st visit, at 30th week and 36th week of gestation. Blood cultures were done in all the babies admitted to NICU for various reasons.

Results:

Table 1: Table showing severity of anemia

Severity of anaemia		
Mild (n=59)	Moderate (n=106)	Severe (n=35)

There were 59 cases of mild anaemia, 106 and 35 were moderate and severe anaemia in the mother.

	Severity of anaemia			p value
	Mild (n=59)	Moderate (n=106)	Severe (n=35)	
Booked /Unbooked				
Booked	37	60	9	0.009**
Unbooked	15	28	16	
Referred	7	18	10	

Table 2: Table showing comparison between B/UB/R with severity of anaemia

A severity of anaemia was more common in unbooked and referred cases. p value 0.009 which is significant.

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	Booked/ Unbooked/ Referred			p value
	Booked (n=106)	Unbooked (n=59)	Referred (n=35)	
Fetal outcome				
PT/FT	(0%)	(0%)	(0%)	<0.001**
• PT	10(9.4%)	16(27.1%)	14(40%)	
• FT	96(90.6%)	43(72.9%)	21(60%)	
IUGR				
• No	89(84%)	37(62.7%)	19(54.3%)	<0.001**
• Yes	17(16%)	22(37.3%)	17(48.6%)	
NICU				
• No	88(83%)	39(66.1%)	22(62.9%)	0.013*
• Yes	18(17%)	20(33.9%)	13(37.1%)	
IUD				
• No	105(99.1%)	58(98.3%)	31(88.6%)	0.023*
• Yes	1(0.9%)	1(1.7%)	4(11.4%)	

Table 3: Table showing comparison between fetal outcomes with B/UB/R cases

The incidence of preterm babies, IUGR, IUD and NICU admissions were more in unbooked and referred cases compared to booked cases. out of total 200, 194 were live born. and met the inclusion criteria, 20% were preterm, 28% IUGR, 51 babies(25 %) required NICU admission due to various reasons out of which 9% developed proven sepsis.

DISCUSSION: In the present study 200 cases were studied. The present study aimed at fetal outcome of anaemic mother.

The various parameters of the subjects were studied, analyzed and evaluated with the standard literature reading available.

In present study, 29.5% mild, 53% moderate and 17.5% were severely anaemic.

In present study 53% of women were booked cases. 29.5% and 17.5% were unbooked and referred cases respectively.

High incidence of adverse fetal outcome in the form of preterm (20%), IUGR (28%), NICU admission (25.5%) and IUD (3%) seen in present study. These were comparable with the observation of Awasthi A et al³ PT (9.5%), IUGR (37.5%) and IUD (8%) and also comparable with Rangnekar et al⁶ PT (73%), IUGR (4%) and IUD (16%).

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In the present study, incidence of preterm deliveries in unbooked cases (27.1%) and referred cases (40%) were high compared with booked cases (9.4%). High incidence of IUGR was seen in unbooked (37.3%) and referred (48.6%) cases compared with booked cases (16%). Out of 51 cases of NICU admission, 9% cases were developed neonatal sepsis.

Among those unbooked (33.9%) and referred (37.1%) required more NICU admission compared to booked (17%) cases due to severe anaemia. IUD was seen more in referred (11.4%) cases with severe anaemia and associated risk factors were severe pre-eclampsia, GDM and PROM. These all outcome were statistically significant.

Incidence of low birth weight babies in the present study was 46.3% which was comparable with 66% observed by Rangnekar et al⁴

Incidence of low birth weight babies in the present study was 46.3% which was comparable with 66% observed by Rangnekar et al⁶ and 69.1% by Khalida H et al.⁵

One of the recent study done in muscat in 2012 by Judith Angelitta and all suggests that maternal age, parity and late prenatal visit were independently associated with maternal anaemia, low birth weight and preterm birth.⁶

Cochrane review 2009 shows that Microcytic hypochromic anaemia resulting from iron deficiency is the most frequent form of anaemia (76%), followed by folate deficiency (20%) and combined iron and folate deficiency (20%).⁷

CONCLUSION: Anaemia is the commonest medical disorder in pregnancy which exists world over and is a very common problem in most of the developing countries. It is not only a medical problem, but is a major public health problem. Maternal and fetal complications and neonatal sepsis was found to be indirectly associated with maternal anaemia

Joint social and medical efforts are required for overall improvement of living status of women. To prevent neonatal complication in anemic women proper antenatal care is the basic requirement. Emphasis should be laid on prevention of anemia by active participation of governmental and nongovernmental organizations, IAP, local societies etc.

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