



Study of Fetomaternal Outcome in Patients of Moderate and Severe Anaemia in > 28 Week Pregnancy

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Abstract

Background: Anaemia in pregnancy is one of the most common problems faced by obstetrician, especially in developing countries. These large differences in risk are related primarily to differences in available obstetric care for women living in areas with inadequate antenatal and delivery care facilities. The our aim of this study to fetomaternal outcome in patients of moderate and severe anaemia in pregnancy.

Material & Methods: A prospective study was conducted in the department of Obstetrics and Gynaecology, J.L.N. hospital, Ajmer from Oct 2015 to Dec 2016. The study was undertaken to find out prevalence of anaemia in pregnancy, Hb status of pregnant women, magnitude of anaemia and fetomaternal outcome of anaemic patients. Out of a total of 1000 pregnant women admitted in labour room for delivery, 325 patients had moderate to severe anaemia and were included in this study.

Results: Out of 1000 cases admitted in labour room 325 cases had moderate to severe anaemia and they were studied to find out fetomaternal complications. Perinatal mortality was also very high in cases of severe anaemia 42%. Moderate to severe anaemia was associated with complications in 53.84% cases. Fetal outcome in present study was in form of 49.23% premature (Gestation age < 37 weeks) birth with 33.12% perinatal mortality.

Conclusion: It can be concluded from present study that severe anaemia is associated with high maternal and fetal morbidity and mortality. It is also associated with high incidence of complication like congestive cardiac failure, toxemia of pregnancy, preterm labour and post partum haemorrhage.

Keywords: Anaemia, Antenatal, postnatal, maternal, fetal.

Introduction

Anaemia in pregnancy is one of the most common problems faced by obstetrician, especially in developing countries. It is the major cause of maternal mortality in India. Globally 50% of the anaemia is assumed to be attributable to iron deficiency. An adult man needs a daily amount of 1.1 mg of iron, compared with twice as much by a woman when she is not pregnant. The total iron

needed during pregnancy is about 1000 mg. The daily requirements for iron, as well as folate, are 6 times greater for a woman in the last trimester of pregnancy than for a non pregnant woman.¹

Nearly 6, 00, 000 women die each year as a result of complication of pregnancy and childbirth; most of these deaths could be prevented with attainable resources and skill (WHO 1996). The worldwide maternal mortality (annual number of deaths of

women due to pregnancy related causes per 100, 000 live births) is estimated to be 239 per 100, 000 live birth (WHO-2015). Most of these occur in developing countries, which have a risk of dying in pregnancy and childbirth that is 50 – 100 times greater than that of women in the developed world. These large differences in risk are related primarily to differences in available obstetric care for women living in areas with inadequate antenatal and delivery care facilities. Harrison (1975) highlighted the importance of maternal anaemia as a contributory factor to maternal death.²

In 1987, international agencies and leaders from 45 countries established the safe motherhood initiative. A key component of safe motherhood is the eradication of anaemia during pregnancy.

Anaemia is defined as reduction in the circulating red cell mass and corresponding decrease in Hb mass and oxygen carrying capacity of blood. In 1972 the WHO expert group recommended that pregnant women with haemoglobin level below 11gm/dl(PCV 33%) should be considered anaemic. In practice in India a level of 10gm/dl may be more realistic. Anaemia is a clinical feature and not a disease. It is a major public health hazard where nearly 40 to 90% of pregnant women are considered anaemic. It contributes directly to 20% of maternal deaths and indirectly to a further 20%.³ The our aim of this study to fetomaternal outcome in patients of moderate and severe anaemia in pregnancy.

Material & Methods

A prospective study was conducted in the department of Obstetrics and Gynaecology, J.L.N. hospital, Ajmer from Oct 2015 to Dec 2016. The study was undertaken to find out prevalence of anaemia in pregnancy, Hb status of pregnant women, magnitude of anaemia and fetomaternal outcome of anaemic patients.

Out of a total of 1000 pregnant women admitted in labour room for delivery, 325 patients had moderate to severe anaemia and were included in this study.

- Moderate anaemia had Hb - 7 – 8.9gm
- Severe anaemia had Hb - < 7gm%

Patients with moderate to severe anaemia were investigated for haematocrit values, PBF, stool examination, complete urine examination. Where required special investigations such as X-ray chest, ECG and USG were done. All cases were studied in full details regarding literacy, socioeconomic status, addiction, occupation, parity, interval between conception, history of abortions, MTP and outcome of previous pregnancy.

Present pregnancy details regarding number of antenatal visits, ill health, chronic infection or infestation any time during pregnancy were studied.

Mode of interference, any operative interference in required were studied.

Intrapartum, postpartum and puerperal complications were studied.

Total outcome was judged by detailed neonatal examination at birth, during hospital stay. Maternal mortality and morbidity was noted.

Results

Out of 1000 cases admitted in labour room 325 cases had moderate to severe anaemia and they were studied to find out fetomaternal complications. Rest of the patients had either mild anaemia (475 cases) or no anaemia (200 cases) (table 1). So overall prevalence of anaemia in pregnancy was 80% in present study.

In this study it was observed that maternal mortality was very high in cases of severe anaemia 16%. Perinatal mortality was also very high in cases of severe anaemia 42% (table 2). The observations show high incidence of fetal and maternal mortality associated with poor or no antenatal care (table 3).

Moderate to severe anaemia was associated with complications in 53.84% cases. PIH was observed in 17.14% of cases, eclampsia in 5.71% of cases. APH in 14.28% cases, 11.42% cases had congestive cardiac failure. Maternal mortality was 35% in congestive cardiac failure. Perinatal

mortality was maximum in congestive cardiac failure group (table 4).

Incidence of maternal morbidity was 43.07%, 30 cases had secondary PPH. 20 cases had puerperal sepsis, 50 cases had delayed involution and 40 cases had wound sepsis (table 5).

Fetal outcome in present study was in form of 49.23% premature (Gestation age < 37 weeks) birth with 33.12% perinatal mortality. There was 21.53% of mature babies with normal birth weight with 7.14% perinatal mortality and 29.23% of mature with low birth weight babies (weight < 2.5 kg) with 14.73% perinatal mortality (table 6).

Table 1: Prevalence of anaemia in pregnancy

Degree of anaemia	Number of cases	Percentage (%)
No anemia	200	20
Mild	475	47.5
Moderate	225	22.5
Severe	100	10
Total	1000	100

Table 2: Perinatal and maternal outcome in relation to degree of anaemia

Degree of anaemia	No. Of Cases	%	Maternal Mortality		Perinatal Mortality	
			No. Of cases	%	No. Of cases	%
Moderate	225	22.5	2	0.89	30	13.3
severe	100	10	16	16	42	42

Table 3: Anaemia in relation to antenatal care

Antenatal visit	No. of cases	%	Maternal Mortality		Perinatal mortality	
			No. of cases	%	No. of cases	%
<u>Moderate anaemia</u> previous antenatal visit	50	22.22	0	0	3	6
No previous antenatal visit	175	77.77	2	1.14	30	17.14
<u>Severe anaemia</u> previous antenatal visit	10	10	1	10	2	20
No previous antenatal visit	90	90	15	37	37	41.11

Table 4: Associated obstetrical and medical complications in patients of anaemia

	No. of cases	%	Maternal Mortality		Perinatal mortality	
			No. of Cases	%	No. of cases	%
Congestive cardiac failure	20	11.42	7	35.00	14	70.00
Pregnancy induced hypertension	30	17.14	2	6.66	4	13.33
Eclampsia	10	5.71	2	20.00	6	60.00
Accidental haemorrhage	25	14.28	5	20.00	15	60.00
Placenta previa	15	8.57	2	13.33	8	53.33
Preterm labour	75	42.85	0	0	25	33.33

Table 5: Maternal morbidity in anaemia

	No. of cases	Percentage
Secondary PPH	30	9.23
Puerperal sepsis	20	6.15
Delayed in volution	50	15.38
Wound sepsis	40	12.30

Table 6: Fetal outcome in anaemia patients

	No. Of cases	%	Perinatal mortality	
			No. Of cases	%
Mature with normal birth weight	70	21.53	5	7.14
Mature with low birth weight	95	29.23	14	14.73
Premature	160	49.23	53	33.12

Discussion

The prevalence of anaemia varied in the patients. In the present study 475 patients were found to have mild anaemia (Hb 9 – 11%) which accounted for 47.5% of the total cases observed. 22.5% had moderate anaemia (Hb 7 – 8.9%). Severe anaemia (Hb < 7gm%) was observed in 10% of cases. So overall prevalence of anaemia in pregnancy was 80% in present study. Luwung N.C. et al⁴ reported prevalence of anaemia to be 75% patients in which Hb was less than 10gm%. Modok⁵ observed prevalence of anaemia was 81.5%. 12% cases was had severe anaemia. Gupta et al⁶ in Jaipur observed total prevalence of anaemia to be 90.6%.

In this study it was observed that maternal mortality was very high in cases of severe anaemia 16%. Perinatal mortality was also very high in cases of severe anaemia 42%. Uday Donade et al⁷ found that the incidence of perinatal death was 36% in severe anaemia, 12.2% in mild anaemia while 5.3% in patients with Hb 10gm% which is comparable with our study. Diallo M.S.⁸ reported 65% maternal mortality was due to anaemia.

The WHO study of maternal mortality in India (Bhatt. 1996)⁹ states that anaemia was the cause of maternal death in 64.4% of cases.

Out of 100 cases of severe anaemia, 90% had no previous antenatal visit and 10% had one or two antenatal visit. Out of 90 cases with no previous antenatal visit maternal mortality was 16.66% as compared to 10% in cases who had antenatal visit. Perinatal mortality was 20% in cases who had previous antenatal visit and 41.11% in cases who had no previous antenatal visit. The observations show high incidence of fetal and maternal mortality associated with poor or no antenatal care. Rosario et al reported that 90% unbooked

cases had severe anaemia. Same was observed in the present study 90% cases of severe anaemia had no antenatal visit while he reported 75.5% cases of moderate anaemia and 66.2% cases of mild anaemia had antenatal visit.

Dasgupta S. et al¹⁰ reported that severe anaemia accounted 13% of perinatal mortality. About 85.9% of the mothers did not receive adequate antenatal care services.

Congestive cardiac failure usually occurs in 3rd trimester of pregnancy due to increased workload on heart. Very high incidence of CCF of 78% was observed by Satyanarayan et al (1984)¹¹, Rosario et al (1971)¹² and Rathee et al (1987)¹³ reported incidence of 18.75% and 15.19% respectively same as present study. PIH was observed in 25% cases of Rosario et al (1971)¹² series Rathee et al (1987)¹³ encountered PIH and eclampsia in 5.17% and 2.3% respectively.

Singhal U, Saxena K.¹⁴ Studies the effect of anaemia on respiratory and metabolic parameters during third trimester of pregnancy. They found O₂ uptake, CO₂ output, respiratory exchange ratio, resting metabolic rate were significant increased whereas PEFr was significant decreased in anaemic than in normal subjects during third trimester of pregnancy.

Incidence of maternal morbidity was 43.07%, 30 cases had secondary PPH. 20 cases had puerperal sepsis, 50 cases had delayed involution and 40 cases had wound sepsis. Chatterjee et al¹⁵ reported 53.5% maternal morbidity in anaemia. Pandey et al¹⁶ observed puerperal sepsis, in 22.3, wound sepsis in 11.8% delayed involution in 31.5% and secondary PPH in 33% cases.

Anaemia is not only dangerous for mother but also threatens life and well being of fetus. Prematurity, still birth. IUGR and congenital malformation are associated with anaemia.

Chatterjee et al¹⁵ and Rangnakar et al¹⁷ reported highest incidence of prematurity being 35.5% and 82.4% in severe anaemia. Least incidence of 24% was reported by Satyanarayan et al while Pandya et al¹⁶ and Achari et al¹⁸ recorded incidence of prematurity was 55.2% and 4% same as present study.

Rangankar et al¹⁷ and Pandya et al¹⁶ reported high incidence of LBW babies being 82.4%, 78.48%, 79.5% respectively. While Rathee et al¹³ and Rosario et al¹² have reported incidence of 61.75% and 65.5%.

Rathee et al¹³, Roy et al¹² had reported high incidence of still birth being 33.7% and 32.3% respectively. Achari et al¹⁸ and Rangnekar A.G. et al¹⁷ reported incidence of SB being 16.07% and 10.8% which were comparable with present study. Single PN, Tyagi M, Kumar A, Dash D and Shankar R¹⁹ studied effect of maternal iron deficiency anaemia and fetal growth. He found that the birth weight, head circumference, chest circumference, mid arm circumference and crown heel length were significant low in infants born to women with moderate (Hb 6.1 to 8.5 gm/dl) and severe anaemia (Hb \leq 6.0 gm/dl). All indices of fetal growth showed linear relationship with maternal haemoglobin.

Das S. Gupta et al¹⁰ found severe anaemia was responsible for 13% of perinatal mortality cases.

Conclusion

It can be concluded from present study that severe anaemia is associated with high maternal and fetal morbidity and mortality. It is also associated with high incidence of complication like congestive cardiac failure, toxemia of pregnancy, preterm labour and post partum haemorrhage.

It seems difficult to achieve this goal if concrete measures are not taken, not only in urban area but rural areas as well. The maternal and fetal outcome can only be improved if following certain measures are taken:

- 1) Removal of social inequities facing women in essential and attitude towards girl should be change.

- 2) Through out childhood and adolescence her nutrition should not be neglected.
- 3) Female literacy and education including vocational training should be improve which will improve employment opportunities to delayed marriage and fewer children.
- 4) Ensuring accent to family planning should be emphasized through health education material.
- 5) Community based maternity care should be made available and preexisting be improved at rural primary health centre.
- 6) All women should get adequate prenatal care at least four visits should be there one before 20 weeks, 2nd by 28 weeks, 3rd between 32 – 34 weeks and 4th at full term.
- 7) Iron and folic acid should be supplemented in all cases.
- 8) Hospital delivery should be advised in booked cases which will be safe for mother and fetus.
- 9) All high risk cases should be identified and should be referred to hospital in time.

Present study of anaemia has shown that there is higher incidence of maternal and fetal mortality associated with severe anaemia. This study that if adequate measures are taken to improve the maternal nutrition status from early weeks of pregnancy and supplementation of essential haemopoietic factor can atleast minimize the severity of anaemia if cannot prevent it completely. Thus, reducing the incidence of maternal and fetal mortality remarkably to achieve goal of safe motherhood.

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