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Maternal and fetal outcome in anaemia complicating pregnancy

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Abstract

Background: Anaemia is a major public health problem especially among the poorer segments of the population in developing countries like India and it is one of the major challenges an obstetrician faces in his / her carrier.

In India, it is frequently severe and contributes to maternal mortality and reproductive health morbidity. It deserves more attention than its currently receiving. Recently lot of programmes have been focussed on safe motherhood but maternal anaemia remains a problem of great concern.

Aims & Objectives: To study women presenting in the antenatal department with various degrees of anaemia and find out its effect on

- Maternal morbidity and mortality
- Mother in puerperium
- Fetal morbidity and mortality
- Baby in the neonatal period

Materials Methods: 1000 antenatal patients attending the AN-OPD at the Department of Obstetrics and Gynaecology, Govt. Kilpauk Medical College Hospital in the year 2018-2019 were selected for the study. These patients were screened for anaemia as is routinely done.

Inclusion Criteria: Patients of all three trimesters, with moderate or severe anaemia

Exclusion Criteria: Patients with low haemoglobin levels whose pregnancy ended in an abortion or turned out to be a molar pregnancy were excluded from the study. Patients with PIH were also excluded from the study.

Conclusion: In most of them the pregnancy is uneventful. Nutritional anaemia and hookworm infestation were the most likely cause, as all patients who came early showed drastic improvement in maternal and fetal outcome with treatment of the same.

- Lower the haemoglobin, greater was the incidence of low birth weight, preterm labour and perinatal mortality. Early treatment did decrease the incidence of the above complications. But most of the patients paid their first visit only in the late third trimester. Women who had preterm labours had higher incidence of perinatal mortality.
- The study clearly showed that maternal morbidity like congestive cardiac failure, atonic PPH and infections and maternal mortality was higher when haemoglobin concentration fell.
- This study emphasises the need for increased awareness, regular antenatal checkups, early detection and treatment of anaemia in the study population. It also emphasises the need to strengthen our outreach services and family welfare services.

Keywords: Proximal tibia fracture, MIPPO, knee stiffness, wound dehiscence

Introduction

Anaemia is a major public health problem especially among the poorer segments of the population in developing countries like India and it is one of the major challenges an obstetrician faces in his / her carrier.

In India, it is frequently severe and contributes to maternal mortality and reproductive health morbidity. It deserves more attention than its currently receiving. Recently lot of programmes have been focussed on safe motherhood but maternal anaemia remains a problem of great concern.

Gender discrimination is another important factor in India as the girl child, right from youth, is denied proper food and education.

Anaemia in pregnancy accounts for 25 percent of deaths due to associated causes and 11.5% of all maternal deaths (Mudaliar). Anaemia contributes to 10-15% of direct maternal deaths in India. (Mudaliar)

An estimated 60% of all pregnant women in developing countries have anaemia. Anaemia either directly or indirectly contributes to about 20% of maternal deaths in third world countries.

Among all causes of anaemia, nutritional anaemia is of greatest concern, 90% due to iron deficiency (Fenton 1997).

In places where malaria or hook worm infestation is endemic, prevalence of anaemia is as high as 90% (Agarwal AK *et al.* 1999). Konnon (1994) studied the incidence of anaemia in adolescent girls in slum areas in the city of Baroda, 98% of adolescent girls were anaemic. This adversely affects reproductive performance.

Multipara, multiple pregnancy, blood donors and persons with a diet low in meat / vegetarian (Chegget *et al.* 1996) are more prone for anaemia. Adolescents because of their low body iron stores are also at risk.

In India the prevalence of iron deficiency anaemia has come down due to fortification, prophylactic iron supplementation, better health care programmes aimed at women and children (School Hedige 1994).

Most of the women attending the antenatal OPD have a Hb around 8-10gm/dl. These patients come from a low socioeconomic strata. They are unable to come for regular antenatal checkups. They prefer to work and earn their livelihood rather than get admitted and get their anaemia treated. This dissertation attempts to analyse the maternal and fetal outcome of pregnancy in anaemic women and study the effect of birth spacing in improving the same.

Prevention is better than cure. This study could guide us as to the levels at which we need to direct our preventive measures to check the progress of anaemia in antenatal women and improve our out reach services thereby identifying anaemia in the adolescent stage.

Need For the Study

Prevention of anaemia is essential in normal care to have a healthy baby from a healthy mother and thereby build a healthy nation.

Anaemia is the most important complication in pregnancy in developing countries not only because of its high incidence but also because of its severity. WHO UNICEF collaboration survey in developing countries and ICMR studies in Indian context revealed that out of the total women suffering from anaemia 2/3 are pregnant and lactating mothers (Naik D. Jayashree & Malatikeshan – 1992).

Anaemia of pregnancy is mainly nutritional-iron, folate and B12 deficiency; most commonly due to non-availability of correct food and food taboos and cooking customs. Studies reveal that socioeconomic, cultural factors influence dietary inadequacy during pregnancy which is attributed to poor purchasing power, illiteracy, ignorance regarding nutritive value of readily available cheaper foodstuffs, cultural taboos, superstition and large family (Menon Krishnan *et al.* 1995, Rull Benett and Brownlinding 1993, Naik / D Jayashree 1992). Factors like chronic illness, haemorrhage short birth intervals, parity will also influence the prevalence of anaemia during pregnancy (Ratnan *et al.* 1993). Severe forms of anaemia in III trimester of pregnancy are invariably associated with cardiac failure, 20%

deaths, low birth weight, prematurity, perinatal and infant mortality (Mennon Krishnan *et al.* 1996).

According to Hassan Masood 1991 anaemia is prevalent in 50-90% pregnant women in India which is No.1 Killer.

Despite considerable improvement and awareness in Antenatal care in developing countries and inspite of MCH programmes and National Anaemia Prophylaxis in India, anaemia remains a great concern with regard to maternal morbidity and mortality and adverse outcome (Singh Krishnan *et al.* 1995).

Anaemia may antedate conception, its often aggravated by pregnancy and the accidents of labour may perpetuate it. It is one of the prime concerns of the antenatal care to forestall it, for the safety of labour and puerperal state. The incidence of anaemia has been on the rise for past several decades in different parts of the world, more so in developing countries. Recent reports indicate the increase in maternal morbidity, mortality and adverse fetal outcome when anaemia complicates pregnancy. To decrease this, obstetricians have been stressing on regular antenatal checkup. Thus an effort has been made to know the effects of anaemia on fetomaternal outcome in this study.

Aim of the Study

To study women presenting in the antenatal department with various degrees of anaemia and find out its effect on

- Maternal morbidity and mortality
- Mother in puerperium
- Fetal morbidity and mortality
- Baby in the neonatal period

Materials and Methods

1000 antenatal patients attending the AN-OPD at the OG Dept. Govt. KMC Hospital in the year 2018-2019 were selected for the study. These patients were screened for anaemia as is routinely done.

Inclusion Criteria

Patients of all three trimesters, with moderate or severe anaemia

Exclusion Criteria

Patients with low haemoglobin levels whose pregnancy ended in an abortion or turned out to be a molar pregnancy were excluded from the study. Patients with PIH were also excluded from the study.

For all the patients in the study the following parameters were measured

- Haemoglobin concentration in g/dl
- Haematocrit %
- Total RBC count million / mm³
- Total WBC count
- Platelet Count
- Peripheral smear for type of anaemia and to rule out malaria
- MCV (Mean Corpuscular volume)
- MCH (Mean corpuscular haemoglobin)
- MCHC (Mean Corpuscular Haemoglobin Concentration)

Results

Table 1: Preterm Vs Hb

	≤ 7gm%	7.1gm to 9gm%
Number of Cases	3	19

A neonate born before 37 completed weeks (before 259th day)

Table 2: Term / Preterm Vs Hb

Number of Cases	≤7 gm/dl	7.1gm to 9gm / dL
Preterm	3 (12%)	19 (16.96%)
Term	22 (88%)	93 (83.04%)

16.96% of moderately anaemic patients and 12% of severely anaemic patients went for preterm labour.

Preterm babies had a higher risk of perinatal morbidity and mortality.

Table 3: Age Distribution of Anaemic Women Who Had Preterm Labour

Age	No. of Cases	Percentage
15-20	4	18.18%
21-25	10	45.45%
26-30	6	27.27%
> 30	2	9.09%

Of the 22 patients who had preterm labour, 3 were cases of preterm intrauterine deaths. 2 cases of early neonatal deaths.

1 was a case of multiple pregnancy.

Table 4: Mode of Delivery in Anaemic Women Who Went For Preterm Labour

Mode of Delivery	No. of Patients	Percentage
Vaginal	17	77.27%
Assisted Breech	1	4.54%
Outlet forceps	1	4.5%
LSCS	3	13.63%

Vaginal delivery 77.27%.LSCS 13.63%

Table 5: Birthweight Vs Maturity

No. of Cases	Birth Weight	
	< 2.5 kg	2.5 kg or above
Preterm	17	2
Percentage	89.47%	10.52%

89.47% of preterm babies were low birth weight. Lower the Hb more the likelihood of preterm labour. Prematurity increased the incidence of low birth weight, intrauterine death and early neonatal loss, thereby worsening the fetal outcome.

Table 6: Maternal Outcome Hb Vs Maternal Cardiac Status

	Compensated	In failure	Total
Patients With Hb ≤ 7gm/dl	20 (80%)	5 (20%)	25
Patients with Hb>7gm /Dl	112 (100%)	0	112
			137

Patients with moderate anaemia were not in failure.

Lower the Hb level the more likelihood of the patient being in failure. The 5 patients in this study who were in failure had Hb<5.6gm/dl. These patients were admitted immediately. The congestive cardiac failure was treated as mentioned earlier and patient kept hospitalised till delivery. Meanwhile the Hb status was improved by carefully transfusing packed cells (taking care to avoid volume over load) and giving the patients hematinics. Failure was uncommon when Hb was above 7gm/dl.

Table 7: Atonic PPH Vs Hb

	Hb Level		
	≤ 7gm/dl	7.1-9g/dl	≥ 9g/dl
Total No. of Cases with Atonic PPH	1 (4%)	3 (2.6%)	2 (0.25%)
Total No. of Cases in each group	25	112	786

The lower the haemoglobin the greater the risk of atonic PPH.

One patient with atonic PPH had gone for acute inversion of the uterus. The same was repositioned and oxytocics were given to obtain hemostasis. A unit of packed cells was given to improve her general condition.

Summary

- ❖ In this study of 1000 patients there were 2.5% severe, 11.2% moderate and 78.6% mildly anaemic patients.
- ❖ Most of the patients with moderate and severe anaemia came for the first time to our hospital only in the III trimester.
- ❖ Maximum number of patients fell in the mild anaemia group and of them most of patients had Hb between 9.1 and 10 gm /dl
- ❖ As the parity increases the Hb concentration decreases.
- ❖ 17.5% of cases were teenagers. Early marriage, frequent pregnancies at short intervals increased the incidence and severity of anaemia in the population.
- ❖ Most of the anaemic patients had microcytic hypochromic anaemia.
- ❖ The percentage of babies with birth weight less than 2.5kg was 40.74% among the moderate and severely anaemic patients.
- ❖ 28% of severely anaemic patients came for regular antenatal checkups and had no incidence of low birth weight.
- ❖ In unbooked anaemic patients as gravidity increased the percentage of low birth weight also increased.
- ❖ When the inter delivery interval was less than 2 years the incidence of low birth weight increased.
- ❖ There was poor acceptance of family planning measures especially when patients had children of same sex or when they wanted a male child.
- ❖ Anaemic women who belonged to the teenage group or > 30 year group had higher incidence of low birth weight.
- ❖ As Hb concentration decreases the incidence of prematurity increases.
- ❖ Prematurity increased the incidence of low birth weight, intrauterine death and early neonatal loss.
- ❖ Lower the Hb, more was the chance of congestive cardiac failure. The patients in this study had Hb < 5.8gm/dl.
- ❖ Lower the Hb the more was the risk of atonic PPH and infections.
- ❖ There was 1 Maternal mortality in the group with Hb < 9gm /dl and none in the group of mild anaemia.
- ❖ The perinatal mortality was 8% in severely anaemic patients and 2.67% in moderately anaemic patients, nearly a fourfold increase.

Conclusion

- In most of them the pregnancy is uneventful. Nutritional anaemia and hookworm infestation were the most likely cause, as all patients who came early showed drastic improvement in maternal and fetal outcome with treatment of the same.
- Lower the haemoglobin, greater was the incidence of low birth weight, preterm labour and perinatal mortality. Early treatment did decrease the incidence of the above complications. But most of the patients paid their first visit only in the late third trimester. Women who had preterm labours had higher incidence of perinatal mortality.
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It also emphasises the need to strengthen our out reach services and family welfare services.

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