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# "Study of the Impact of Anaemia during Pregnancy and Its Obstetrical Outcome"

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## I. Introduction:

Anaemia is commonest medical disorder in pregnancy. Anaemia among pregnant women is a serious global health concern. According to World Health Organization (WHO) report, about 32.4 million pregnant women suffer from anaemia worldwide, of which 0.8 million women are severely anaemic. Moreover, 50% cases of anaemia are attributable to iron deficiency anemia (IDA). WHO defines anaemia in pregnant women as haemoglobin level < 11 gm/dl and a hematocrit of < 0.33.Anaemia in postpartum females is defined as Hb less than 10 g/dl by WHO. The FOGSI-WHO has estimated that prevalence of anaemia in developed and developing countries in pregnant women as 14% and 51% respectively and 65-75 per cent in India. The main causes of anaemia in developing countries include: inadequate intake and poor absorption of iron, malaria, hookworm infestation, diarrhea, HIV/AIDS and other infections, genetic disorders (e.g., sickle cell and thalassemia), blood loss during labor and delivery, heavy menstrual blood flow and closely spaced pregnancies. Anaemia is also associated with increased risk of preterm labor (28%), pre-eclampsia(31%) & puerperal sepsis, lactation failure and delayed wound healing. Iron deficiency and anaemia during pregnancy are associated with low birth weight, iugr, preterm delivery, increased perinatal and neonatal mortality, inadequate iron stores for the newborn, increased risk of maternal morbidity and mortality.

**AIM:**

• To study the impact of anaemia during pregnancy and its obstetrical outcome

**OBJECTIVES:**

• This study will be conducted with the following objectives:-

1) To study the maternal and neonatal outcome in anaemic pregnant women.
2) To study the maternal and neonatal outcome in non anaemic pregnant women.
3) To compare obstetrical outcome between both the group.

## II. Material And Methods:

• **Place of study**: • The study was conducted at the department of Obstetrics and Gynaecology , Umaid Hospital Jodhpur , Rajasthan , India.

• **Study period:** The study was done during the period of January 2020 to June 2020.

• **Study design**: The study was a hospital based prospective case study.

**• POPULATION OF STUDY: •** A total of 200 antenatal patients were recruited which were admitted in labour room after fulfilling the inclusion and exclusion criteria.

**• Inclusion criteria:**

1. Booked/ unbooked
2. Singleton pregnancy
3. Vertex presentation
4. Age groups : women 20 to 42 years age Continue..

**• Exclusion criteria:**

• Gestational age less than 28 weeks
• Multiple pregnancy
• Antepartum Haemorrhage
• Grand multipara
• Patients with malpresentation
• Induced labour
• Intrauterine demise/ congenital fetal anomalies
• Post caesarean
• Women with past history of preterm delivery, obstetric complications or any other medical illness ,(except anaemia)

**PROCEDURE:** Informed consent was taken. All the patients underwent detailed history taking and clinical examination. Details of the patients were recorded in as self-prepared clinical data sheet. They were divided into groups according to haemoglobin levels (ICMR guidelines). On the basis of degree of anaemia maternal and perinatal outcome was studied. The investigation done were: Blood Haemoglobin quantitative estimation , Peripheral smear for type of anaemia ,Hematocrit(PCV) , Blood grouping and typing .,Urine routine and microscopy , Smear for malarial parasite if any Stool for occult blood, cyst/ova.

## III. Result:

All the outcome parameters were expressed as number and percentages or mean + standard deviation by computer based Statistical Product And Service Solutions (SPSS) latest version. Comparison of outcome parameters between the two groups was done using students t test and chi square test

1. Haemoglobin level according to ICMR guideline

| Anaemia (HB %) | FREQUENCY | % |
|---|---|---|
| >_ 11 | 115 | 57% |
| 10 – 10.9 | 43 | 21.5% |
| <9.9 | 42 | 21% |
| TOTAL | 200 | 100% |

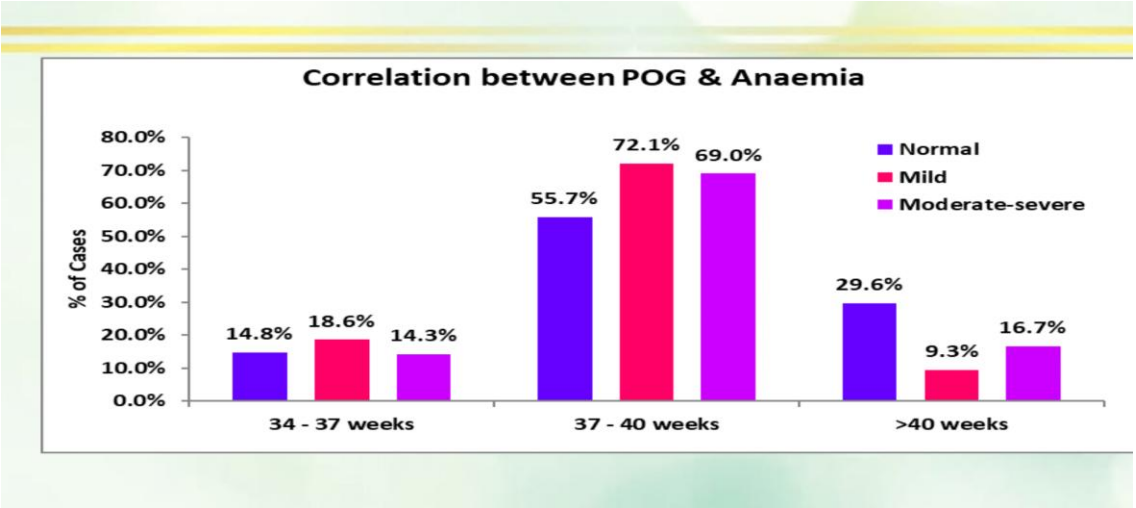
Haemoglobin level according to ICMR guideline : 57.5% were non anaemic, 21.5% were mild anaemic and 21% were moderate to severely anaemic women.

2. DEMOGRAPHIC DISTRIBUTION OF STUDY POPULATION

| PARAMETERS | ≥11g/dl | 10-10.9 g/dl | ≤9.9g/dl |
|---|---|---|---|
| AGE | 23.69 ± 2.80 | 24.28 ± 3.26 | 23.79 ± 2.22 |
| PARITY PRIMI/MULTIGRAVIDA | 70.4% / 29.6% | 67.4% / 32.6% | 59.5% / 40.5% |
| BOOKIG STATUS BOOKED / UNBOOKED | 68.7% /31.3% | 34.9% / 65.1% | 14.3% / 85.7% |

In this table showing demographic distribution of study population , showing average age of 23.69years. 40.5% Multigravida women showing Hb ≤9.9g/dl i.e. moderate to severely anaemic group. In antenatal booking status , unbooked cases were 65.1% in mild cases and 85.7% women having moderate to severe anaemia.

3.Correlation between POG & Anaemia



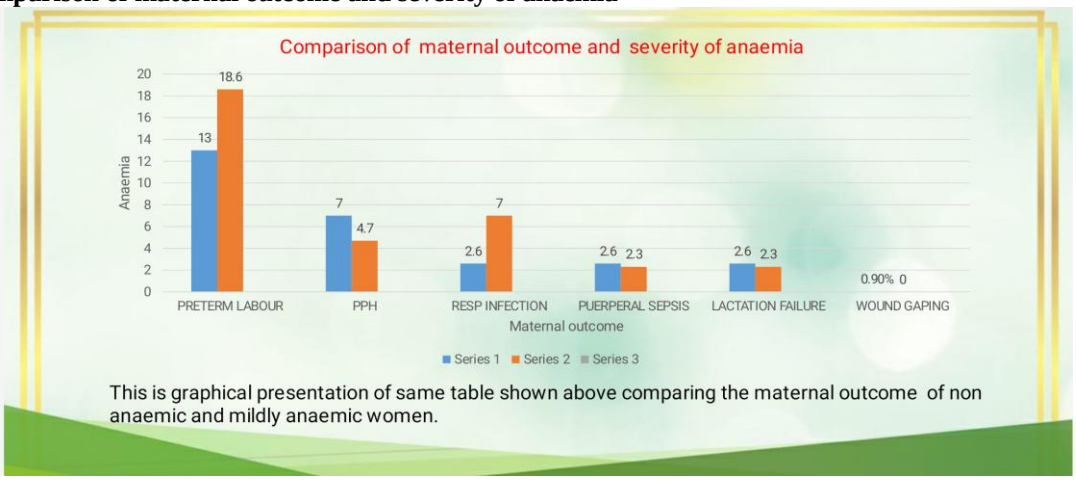

In this graphical presentation showing severity of anaemia and gestational age. Its depicting 63% women present between 37-40 weeks gestation and less than 37 weeks were seen in 14.5% women.

4. COMPARISON OF MATERNAL OUTCOME BETWEEN MILD ANAEMIC AND NON ANAEMIC WOMEN

| Maternal outcome | Haemoglobin level | |
|---|---|---|
| | ≥11g/dl | 10-10.9 g/dl |
| | No of cases (%) | No of cases (%) |
| PRETERM LABOUR | 13.0% | 18.6% |
| DYSFUNCTIONAL LABOUR | 0.9% | 0.0% |
| RESPIRATORY INFECTION | 2.6% | 7.0% |
| DEEP VEIN THROMBOSIS | 0.0% | 0.0% |
| PPH | 7.0% | 4.7% |
| CCF | 0.0% | 0.0% |
| PUERPERAL SEPSIS | 2.6% | 2.3% |
| WOUND GAPING | 0.9% | 0.0% |
| LACTATION FAILURE | 2.6% | 2.3% |

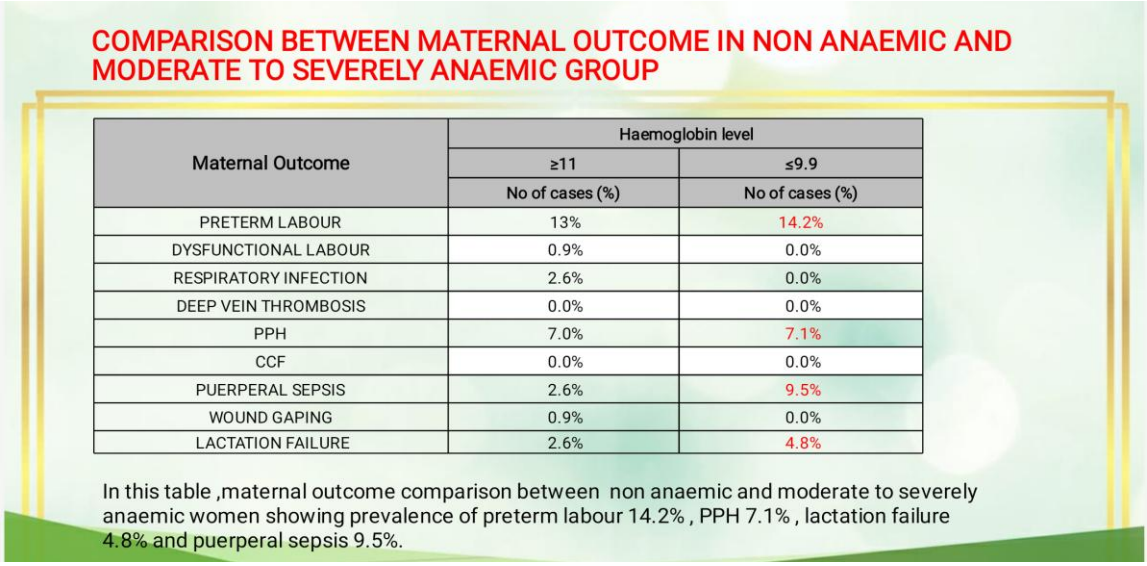
In this table showing comparison of non anaemic and mildly anaemic women showing prevalence of preterm labour 18.6% , respiratory infection 7%, PPH 4.7% and lactation failure and puerperal sepsis 2.3% each.

**5. Comparison of maternal outcome and severity of anaemia**




This is graphical presentation of same table shown above comparing the maternal outcome of non anaemic and mildly anaemic women.

**6. COMPARISON BETWEEN MATERNAL OUTCOME IN NON ANAEMIC AND MODERATE TO SEVERELY ANAEMIC GROUP**

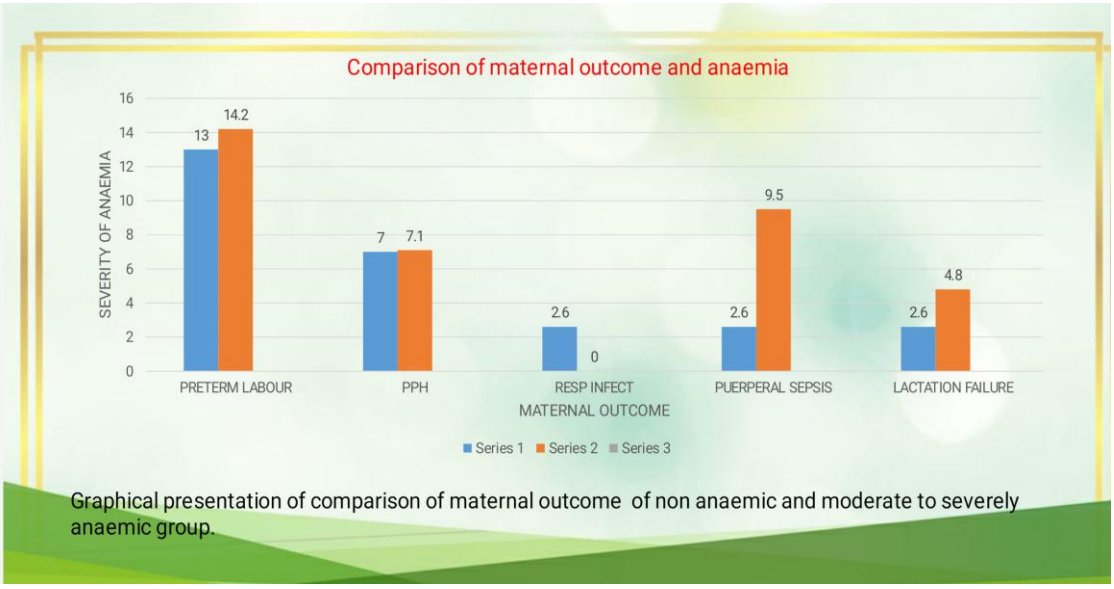



| Maternal Outcome | Haemoglobin level | |
|---|---|---|
| | ≥11 | ≤9.9 |
| | No of cases (%) | No of cases (%) |
| PRETERM LABOUR | 13% | 14.2% |
| DYSFUNCTIONAL LABOUR | 0.9% | 0.0% |
| RESPIRATORY INFECTION | 2.6% | 0.0% |
| DEEP VEIN THROMBOSIS | 0.0% | 0.0% |
| PPH | 7.0% | 7.1% |
| CCF | 0.0% | 0.0% |
| PUERPERAL SEPSIS | 2.6% | 9.5% |
| WOUND GAPING | 0.9% | 0.0% |
| LACTATION FAILURE | 2.6% | 4.8% |

In this table ,maternal outcome comparison between non anaemic and moderate to severely anaemic women showing prevalence of preterm labour 14.2% , PPH 7.1% , lactation failure 4.8% and puerperal sepsis 9.5%.

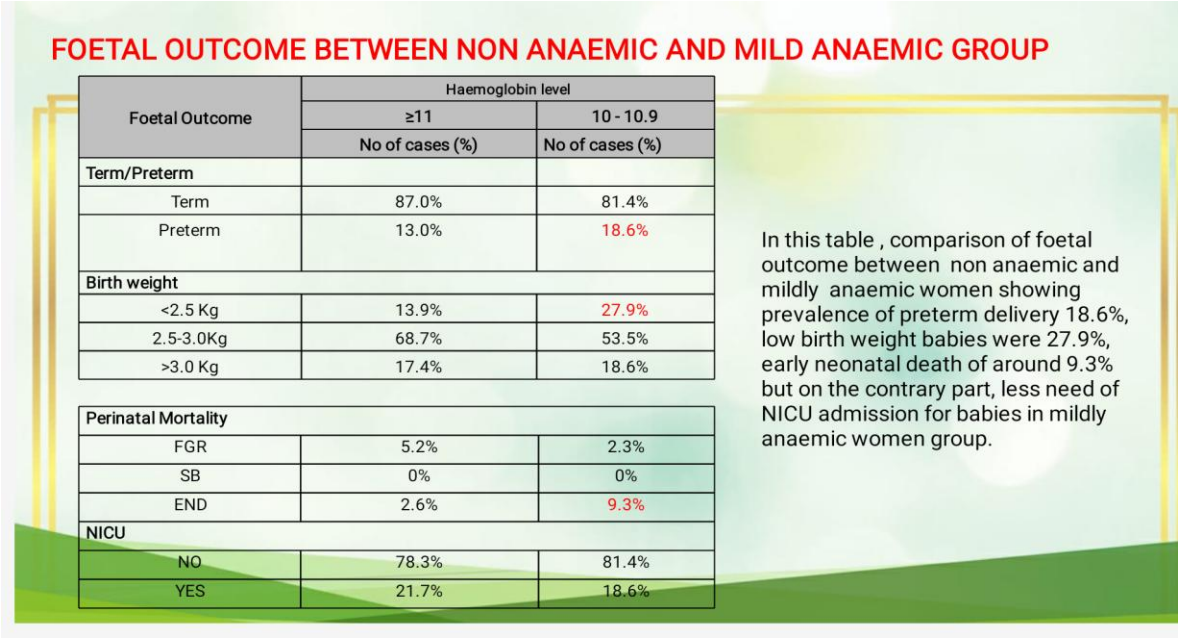
In this table ,maternal outcome comparison between non anaemic and moderate to severely anaemic women showing prevalence of preterm labour 14.2% , PPH 7.1% , lactation failure 4.8% and puerperal sepsis 9.5%

**7. COMPARISON OF MATERNAL OUTCOME AND ANAEMIA**



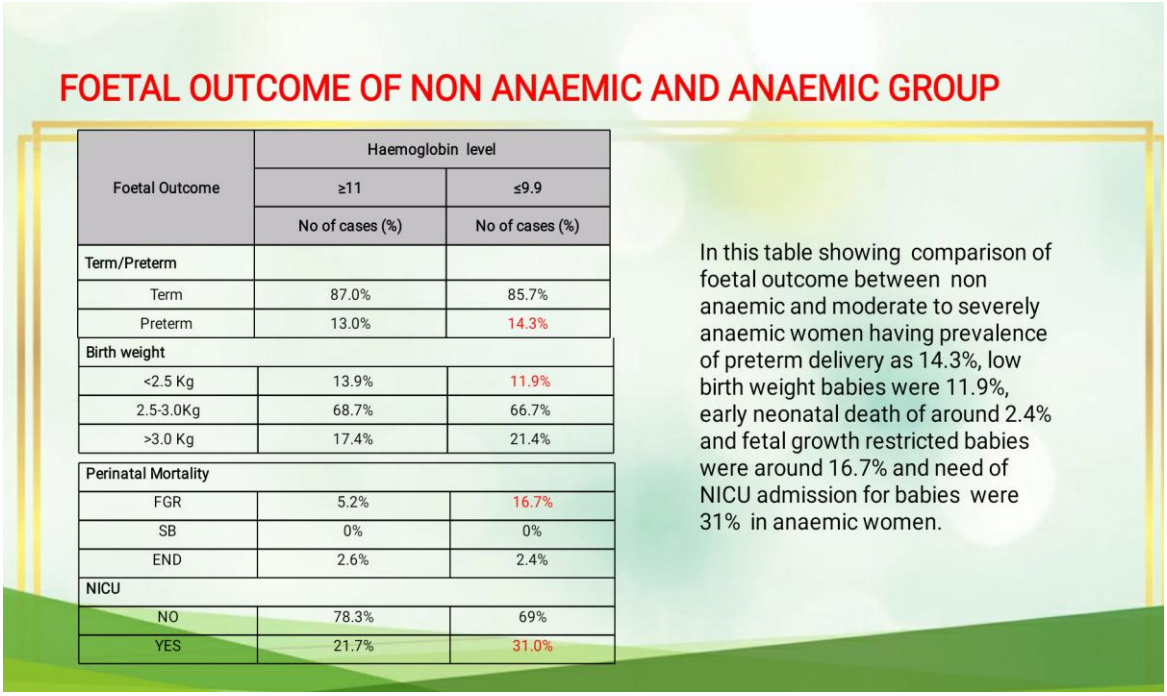

Graphical presentation of comparison of maternal outcome of non anaemic and moderate to severely anaemic group.

**8. FOETAL OUTCOME BETWEEN NON ANAEMIC AND MILD ANAEMIC GROUP**




| Foetal Outcome | Haemoglobin level | |
|---|---|---|
| | ≥11 | 10 - 10.9 |
| | No of cases (%) | No of cases (%) |
| Term/Preterm | | |
| Term | 87.0% | 81.4% |
| Preterm | 13.0% | 18.6% |
| Birth weight | | |
| <2.5 Kg | 13.9% | 27.9% |
| 2.5-3.0Kg | 68.7% | 53.5% |
| >3.0 Kg | 17.4% | 18.6% |
| Perinatal Mortality | | |
| FGR | 5.2% | 2.3% |
| SB | 0% | 0% |
| END | 2.6% | 9.3% |
| NICU | | |
| NO | 78.3% | 81.4% |
| YES | 21.7% | 18.6% |

**9. FOETAL OUTCOME OF NON ANAEMIC AND ANAEMIC GROUP**




| Foetal Outcome | Haemoglobin level | |
|---|---|---|
| | ≥11 | ≤9.9 |
| | No of cases (%) | No of cases (%) |
| Term/Preterm | | |
| Term | 87.0% | 85.7% |
| Preterm | 13.0% | 14.3% |
| Birth weight | | |
| <2.5 Kg | 13.9% | 11.9% |
| 2.5-3.0Kg | 68.7% | 66.7% |
| >3.0 Kg | 17.4% | 21.4% |
| Perinatal Mortality | | |
| FGR | 5.2% | 16.7% |
| SB | 0% | 0% |
| END | 2.6% | 2.4% |
| NICU | | |
| NO | 78.3% | 69% |
| YES | 21.7% | 31.0% |

## IV. Discussion :

Anaemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. The majority of the subjects 76.5% in this study were between 21-25 years of age similar to Gopinath et al 2018. 67.5% cases were primigravida and rest multigravida similar to *Ahmad N et al 2010*. 64% of the cases belonged to middle socio economic status according to modified kuppuswamy classification 2019 followed by 30.5% women under low socio economic status. Out of 200 patient taken into our study, non-anaemic cases 57.5%, mildly anaemic women 21.5% and moderate to severely anaemic i.e. 21%. Minimum haemoglobin level was 6.7g/dl and maximum haemoglobin was 14.4 g/dl.

54.5% were having BMI in normal range, 56.2% vegetarians were anaemic, 66.5% women had Normocytic Normochromic type general blood picture and 58.8% Hindu had anaemia ; All these factors were statistically significant. In moderate to severely anaemic women, maternal outcome were as follows PPH 7.1%,

puerperal sepsis 9.5%, lactation failure 4.8% , preterm delivery 14.3%, FGR 16.7%, NICU admission 31% seen in similar study *Naushaba et al 2013*. No stillbirth and maternal death were seen. Our study was similar to Riffat et al in which PPH was 9.8%, wound infection was 7.8%, preterm labour 23.5% hence highlighted the importance of considering maternal anaemia as an indicator of adverse pregnancy outcome. In *Rohila et al 2016* was similar to our study showing preterm labour around 18.7%, IUGR was 16.7%, PPH around 25% with no stillbirth seen.

## V. Conclusion:

We conclude that prevalence of anaemia is more in rural population. Demographic factors play a very important role and burden of nutritional anaemia in pregnant women are alarmingly high. Early detection, treatment and prevention of anaemia cases definitely prevents maternal and perinatal outcome. We found that wide coverage, systematic intervention, and distribution of folic acid and iron supplements to pregnant women by subcenters and PHC prior to visit to our tertiary hospital was effective. Limitation is yet it is a very small study to effectively determine a definitive approach for treatment of anaemia in a low resource setting & a large randomized trials are needed

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