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STUDY THE IMPACT OF ANAEMIA DURING PREGNANCY AND ITS FETO-MATERNAL OUTCOME IN TERMS OF MATERNAL COMPLICATIONS AND BIRTH WEIGHT AND NICU ADMISSION OF THE BABY.

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ABSTRACT

Introduction-Pregnancy is considered as one of the most rewarding and memorable experience in a woman's life. Anaemia is a global public ill-health problem affecting both developing and developed countries with major consequences on human health. Though it can occur at any stage of the life cycle, but is more common in pregnant women and young children 1. According to WHO (2008) Iron deficiency anaemia (IDA) remains the most typical medical disorder in pregnancy within the developing world, with the burden of disease impacting on both the mother and therefore the newborn1. **Material and Methods-** A total of 200 antenatal patients were included in the study based on inclusion and exclusion criteria. All the women underwent detailed history taking and clinical examination, routine. Details of the patients including clinical data and investigations were recorded in selfprepared clinical data sheet. These recruited women were divided into two group"s i.e. anaemic and non anaemic group. **Results-** Out of total 200 cases of deliveries, complications of labour were seen in 34 cases. Majority of cases were of PPH i.e. 13, where 8 were non anaemic while 3 were having Haemoglobin level ≤ 9.9g/dl. Equal number of cases was seen in anaemic and non anaemic group with respect to respiratory infection and failing lactation. Majority of the babies were born with birth weight between 2.5-3 kg i.e. 130. Out of these 130 mothers, 51 babies mother fall under anaemic group and 3 cases of severely anaemic women. Less than 2.5 kg birth weight babies were seen in 33 mothers out of which 12 were mildly anaemic, four were having Haemoglobin level ≤ 9.9g/dl and one case of severely anaemic women. Mothers who had Hb <7g/dl, all 4 babies needed NICU admission. **Conclusion-** Estimation of maternal haemoglobin alone doesn't have direct effect on the maternal and perinatal outcome if provided with effective obstetric and neonatal care.

INTRODUCTION

Pregnancy is a unique experience in every woman's life. Anaemia is a global public ill-health problem affecting both developing and developed countries. Though it can occur at any stage of the life cycle, but is more common in pregnant women and young children. According to WHO (2008) Iron deficiency anaemia (IDA) remains the most typical medical disorder in pregnancy within the developing world, with the burden of disease impacting both the mother and therefore the newborn (and subsequent child and later adult).

WHO (2001) defines anaemia in pregnant women as haemoglobin level < 0.33.Anaemia in postpartum females is defined as Hb less than 10 g/dl by WHO [2,3].

Center of Disease Control (CDC) defines anaemia as pregnancy haemoglobin less than 11 g/dl (Hematocrit; Hct 33%) in the first and third trimester and less than 10.5 g/dl (Hct - 32%) in the second trimester (Dowdle, 1989 ; Ramsey et al 2000)[4].

The WHO report shows that 52% of pregnant women and around 35 to 40% of normal women are anaemic in developing countries due to iron deficiency[5].

The causes of anaemia during pregnancy in developing countries are multifactorial including micronutrient deficiencies of iron, folate, and vitamins A and B12 and anaemia due to parasitic infections such as malaria and hookworm. Patients with anemia present clinical symptoms such as fatigue, breathlessness, dizziness, and headache [6,7]. Severe anemia may predispose to infection and heart failure, while severe anemia during pregnancy may significantly contribute to both maternal mortality and morbidity [8,9]. Maternal anemia carries a significant risk of haemorrhage and infection in mothers, reduces the resistance to blood loss causing maternal death and place women at higher risk of death during delivery and the period following childbirth [10]. Maternal anemia may also increase the risk of adverse pregnancy outcomes, such as preterm birth, low birth weight, perinatal death, and anemia in infancy.

MATERIAL AND METHODS

The study was conducted at the department of Obstetrics and Gynaecology, Shri Ram Murti Smarak Institute of Medical Sciences (SRMS IMS), Bareilly, Uttar Pradesh, India and has multispecialty services oriented facilities for Medical Education, Research and Advanced Medical Care. It was a hospital based prospective case study. A total of 200 antenatal patients were recruited based on inclusion and exclusion criteria.

Inclusion Criteria

1. All consecutive antenatal women 2. Singleton pregnancy 3. Cephalic presentation 4. Age groups: women 20 to 45 years of age . Exclusion criteria: 1. Gestational age <28 weeks 2. Multiple pregnancy 3. Antepartum Haemorrhage 4. Patients with malpresentation 5. Induced labour 6. Intrauterine demise/ congenital foetal anomalies.

All the antenatal women underwent detailed history taking and clinical examination and routine investigations including Blood group, Haemoglobin, hematocrit, general blood picture. Details of the patients including clinical and on investigations were recorded inselfprepared clinical data sheet. These recruited women were divided into two group's i.e. anaemic and non anaemic group. LMP, EDD, POG, any risk factors , obstetrical history , past history, personal history, family history,Intra partum , post-partum and puerperal complications, birth weight and NICU admission were all noted in a Self-prepared clinical data sheet.

The data were entered on a Microsoft excel spreadsheet and improved into Statistical Package for Social Sciences (SPSS) version 22 for statistical analysis. Data was present in mean and standard deviation.

RESULTS

Table-1 Age Wise Distribution Of Cases

Age Groups	Maternal Haemoglobin level g/dl			
	Normal (≥11)	Mild (10-10.9)	Moderate (≤9.9)	Severe (<7)
	No of case (%)	No of case (%)	No of case (%)	No of case (%)
20 - 25 years	90 (78.2%)	32 (74.4%)	32 (84.2%)	02 (50%)
26 - 30 years	24 (20.9%)	08 (18.6%)	06 (15.8%)	02 (50%)
>30 years	01 (0.9%)	03 (7.0%)	00 (0.0%)	00 (0%)
Total	115 (100%)	43 (100%)	38 (100%)	04 (100%)
P value	0.154			

Table 2-distribution Of Cases According To Maternal Outcome

Maternal Outcome	Maternal Haemoglobin level, g/dl				p value
	Normal (≥11)	Mild (10-10.9)	Moderate (≤9.9)	Severe (<7)	
	No of cases (%)	No of cases (%)	No of cases (%)	No of cases (%)	
RESPIRATORY INFECTION	03 (2.6%)	03 (7.0%)	00 (0.0%)	00	0.522
POSTPARTUM HAEMORRHAGE	08 (7.0%)	02 (4.7%)	03 (7.8%)	00	1.00
PUERPERAL SEPSIS	03 (2.6%)	01 (2.3%)	03 (7.8%)	01 (25%)	0.6171
WOUND GAPING	01 (0.9%)	0 (0.0%)	00 (0.0%)	00	0.3652
LACTATION FAILURE	03 (2.6%)	01 (2.3%)	02 (4.8%)	00	0.5777

Table-3 Distribution Of Cases According To Birth Weight

Birth weight	Maternal Haemoglobin level , g/dl			
	Normal (≥11)	Mild (10-10.9)	Moderate (≤9.9)	Severe (<7)
	No of cases (%)	No of cases (%)	No of cases (%)	No of cases (%)
<2.5 Kg	16 (13.9%)	12 (27.9%)	4 (10.5%)	01 (25%)
2.5 - 3.0 Kg	79 (68.7%)	23 (53.5%)	25 (65.7%)	03 (75%)
>3.0 Kg	20 (17.4%)	08 (18.6%)	09 (23.6%)	00 (0%)
Total	115 (100%)	43 (100%)	38 (100%)	04 (100%)
Mean ± SD	2.76 ± 0.37	2.69 ± 0.44	2.82 ± 0.46	2.45 ± 0.49
P value	0.14			

Table-4 Distribution Of Cases According To NICU Outcome

NICU	Maternal Haemoglobin level , g/dl			
	Normal (≥11)	Mild (10-10.9)	Moderate (≤9.9)	Severe (<7)
	No of cases (%)	No of cases (%)	No of cases (%)	No of cases (%)
No	90 (78.3%)	35 (81.4%)	29 (76.3%)	00 (0%)
Yes	25 (21.7%)	08 (18.6%)	9 (23.7%)	04 (100%)
Total	115 (100%0	43 (100%)	38 (100%)	04 (100%)
P value	0.215			

DISCUSSION

Pregnancy is a vital part of a women s life but it is period of greater risks of different complications for mother and foetus. Anaemia is responsible for 20% of maternal deaths in developing countries and second most common in India.

In present study 200 women were studied, among which 115 (57.5%) were non anaemia, 43 (21.5%) had mild anaemia, 42 (21.0%) had moderate anaemia, 4 (02%) had severe anaemia. They were categorised accordingly and their maternal and foetal outcomes were analyzed and evaluated with standard literature.

As shown in table 1, majority of the subjects in the present study in both groups non anaemic and anaemic which belonged to the age group of 20-25 years i.e. 78%.

The maternal outcome of both the groups were compared. Out of 85 anaemic women undergoing deliveries, 29 cases had adverse maternal outcome events such as PPH 31.2%, respiratory infection 18.8%, puerperal sepsis 31.2%and lactation failure 18.8%. In non- anaemic women, adverse maternal events were noted in 18 women, respiratory infection i.e. 16.7% after delivery and 44.4% women had PPH, 16.7% had puerperal sepsis and 16.7% case had lactation failure. It is not a statistically significant result but just a coincidence result. This could be explained by fact that PPH is affected by various other maternal factors also not only by haemoglobin level.

Shradha S. Maka et al 2017 showed postpartum febrile illness (9%), PPH (7.5%), and puerperal sepsis (3.5%) similar to Singal N. et al 2018 showing PPH (7.5%), retained placenta (1.5%) and CCF 3 (1.5%). In Singh S et al 2018, preterm labour (42.8%), PPH (10.4%), preeclampsia (16.1%), sepsis (3.8%) [11]. Study conducted by Riffat et al in which PPH was 9.8% and wound infection around 7.8% [12]. This study had highlighted the importance of considering maternal anaemia as an indicator of adverse pregnancy outcome. Therefore, to reduce the burden of this problem and related morbidity, measures to be implemented at community level, which can prevent and treat anaemia in adolescent girls and women.

Fetal outcome in both the groups were studied. Out of 200 women, 115 were of non anaemic group. In anaemic group, low birth weight babies were 17 (20%), and NICU admissions were 21 (24.7%). Our hospital provided good patient care and antenatal surveillance, good patient monitoring and back support like blood transfusion, NICU care, anaesthetic care, 24 hour running operation theatre these all help in better neonatal outcome. Better neonatal outcome seen in my study because of the NICU facility. Our being tertiary care center with all facilities, outcome in both the group is comparable. It is suggested by our result that to optimize the outcome, antenatal women complicated with anaemia should deliver in centers which are equipped to deal with all sorts of maternal and neonatal complications.

CONCLUSION

The incidence of anaemia in antenatal women in our tertiary care hospital was 42.5%. Of these anaemic women, 50.5% mildly anaemic, 44.7% as moderately anaemic and 4.8% were severely anaemic. We found that estimation of maternal haemoglobin alone doesn t have direct effect on the maternal and perinatal outcome. Our result indicates that perinatal and obstetrical outcome is influenced not only by maternal haemoglobin level but also by effective care provided to anaemic women.

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