ANAEMIA IN PREGNANCY, SEVERITY AND OUTCOME IN LUMBINI PROVINCE NEPAL

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ABSTRACT

INTRODUCTION

Anemia is common nutritional deficiency disorder in pregnant women. It is important cause of morbidity and mortality among pregnant women. We evaluated pregnant women presenting to UCMS-TH with hemoglobin level less than 9 gm/dl with reference to maternal and fetal outcome.

MATERIAL AND METHODS

Total of 255 women presenting with moderate to severe anemia at our hospital were evaluated. Demographic profile of patients, maternal outcomes and fetal outcomes were evaluated.

RESULTS

Most of patients were from rural area (78%) of which majority (69.8%) were unbooked. Severe anemia was present in 16.5% cases. Maternal complications included preterm labor (23.1%), post partum hemorrhage (19.2%), wound infection (8.6%), ante partum hemorrhage (5.5%), intensive care unit admission (4.3%) and mortality (0.4%). Fetal outcomes included neonatal intensive care unit admission (29.8%), intrauterine growth restriction (9%) and neonatal death (7.5%).

CONCLUSION

Severity of anemia associated with significant increase in PPH, preterm delivery, ICU admission and heart failure.

KEYWORDS

Anemia, Pregnancy, Outcome

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INTRODUCTION

Anemia is one of the most common nutritional deficiency affecting the pregnant women in developing countries. According to WHO, its prevalence in developed countries is 14% but it is as high as 56% in developing countries.[1]

Anemia was classified based on WHO criteria hemoglobin concentration of 9-10 (9g/dl as mild, 7-8.9 g/dl as moderate and less than 7 g/dl as severe).[2] In this study, moderate to severe anemia were included. Anemia is associated with significant increase in maternal and fetal complications. Maternal complications seen are preterm delivery, postpartum hemorrhage, wound infection, antepartum hemorrhage, maternal ICU admission, heart failure, puerperal sepsis. Neonatal complications include need of ICU admission, low birth weight, intrauterine growth restriction and neonatal death.

Our aim was to look for various factors associated with anemia in pregnancy along with maternal and neonatal complications in women presenting with anemia in a tertiary hospital in lumbini province, Nepal.

MATERIAL AND METHODS

A cross-sectional study was conducted in Universal College of Medical Sciences, Bhairahawa, Province-5 for a period of 12 months (July 2021-June 2022).The study was conducted after being approved by the IRC (UCMS/IRC/046/21), UCMS-TH, Bhairahawa. Pregnant women who presented with moderate and severe anemia irrespective of their age and parity visiting to labor room after 28 weeks of gestation were included in the study. Women who had pre-existing medical conditions along with incomplete information and those who refused to be enrolled were excluded from this study. Written consent were taken from the participant. Target sample size was obtained using the formula n=z2pq/l2 (z=1.96 taken at 95% of confidence interval)

n= required sample size
p= Prevalence of disease (56%)[2]
q= 100-p
l= 6.5% (Maximum tolerabable error)
Z2 = 1.96×1.96 = 4
N=z2pq/l2 = 4 x 56x 44/ 6.52 = 233

Using above mentioned formula, target sample size was 233 for this study. At admission baseline demographic information along with gravidity, detailed medical and surgical history, obstetric and menstrual history was recorded in predesigned proforma after taking verbal and written consent. Gestational age was calculated from the LMP if patient was sure of her date and her previous cycle regular and in cases of irregular cycle, gestational age was calculated from the earliest available ultrasound report. Clinical assessment of all the patients was done which includes general examination, systemic examination including per abdominal examination height of the uterus, lie, presentation, fetal heart rate and the presence or absence of contractions noted. Per vaginal examination was done and all the necessary investigations were sent. Study variables were obstetric complications, mode of delivery birth weight, neonatal intensive care unit (NICU) admission and neonatal death (NND). Case management was according to the hospital protocols. Data entry analysis was done using SPSS 22 spreadsheet.

RESULTS

Total number of deliveries conducted during the study period was 3980 out of which 255 deliveries fall under moderate and severe group which comprises 64.07%. Among patients with moderate to severe anemia 69.8% were unbooked cases and 78 % belonged to rural area. Most of the women were from the age group 20-34 years (82.4%). Anemia was more common in multigravida (64%).

Table 1. Age distribution

Age group (Years)	Frequency	Percentage
<20	27	10.6
20-34	210	82.4
>=35	18	7.1
Total	255	100.0

Table 2. Gravida distribution

Gravida	Frequency	Percentage
Primi	90	35.3
Multi	165	64.7
Total	255	100.0

Table 3. Severity of anemia

Hemoglobin Level	Frequency	Percentage
Moderate	213	83.5
Severe	42	16.5
Total	255	100.0

Among the maternal complications, 59 cases were preterm labor (23.1%) followed by PPH (19.2%), wound infection (8.6%), APH (5.5%), ICU admission (4.3%), heart failure (3.1%), puerperal sepsis (3.1%). One maternal mortality occurred due to very severe anemia (Hb <4g/dl) accounting for 0.4%.

Preterm deliveries, PPH, ICU admission and heart failure were statistically significant in relation to the severity of anemia (Table 3). Low birth weight babies, intrauterine growth restriction, neonatal intensive care unit admission and neonatal death is common in pregnancy with anemia (Table 4).

Table 3. **Maternal complications**

Maternal Complication	Hemoglobin Level Moderate	Severe	*p*-value
APH	10 (71.4)	4 (28.6)	0.264
PPH	32 (65.3)	17 (34.7)	<0.001
Preterm delivery	42 (71.2)	17 (28.8)	0.001
ICU admission	1 (9.1)	10 (90.9)	<0.001
Heart failure	1 (12.5)	7 (87.5)	<0.001
Mortality	0 (0)	1 (100)	0.139
Puerperal sepsis	4 (50)	4 (50)	0.069
Wound infection	15 (68.2)	7 (31.8)	0.174
Blood transfusion (no. of pint)			
0	102 (100)	0 (0)	<0.001
1	60 (95.2)	3 (4.8)	
2	38 (82.6)	8 (17.40)	
3	10 (35.7)	18 (64.3)	
4	3 (27.3)	8 (72.7)	
5	0 (0)	2 (100)	
6	0 (0)	1 (100)	
7	0 (0)	1 (100)	
8	0 (0)	1 (100)	

Table 4. **Fetal/neonatal complications**

Fetal outcome	Frequency	Percentage
LBW	73	38.6
NICU admission	76	29.8
IUGR	23	9
NND	19	7.5

DISCUSSION

Anemia is preventable disease but still causes the significant morbidities in terms of maternal and fetal outcomes. In general, women present very late state at hospital due to lack of antenatal check-up. We found prevalence of anemia 64.07% which is comparable to the prevalence noted in the study done by Ahmad N et al (74.8%).[3]

Majority of women presenting with anemia (82.4%) were in the age group of 20-34 years. Similar to the study done Haniff J et al also found similar results with 85% women in the 20-34 age group.[4] In our study, anemia was more common in multigravida 64.7%. Similar results were demonstrated by Sarojamma C (50%)[5] and Ghimire RH (60%).[6] As compared to the study by Upadhyay C who found unbooked cases to be 29.5%,[7] more cases were unbooked in our study which was 69.8%. Our study unbooked status was similar to study by Awasthi et al (85%).[8] Seventy eight percent of women in our study belonged to rural area.

We found preterm delivery in 23.1% which was similar to Kanwar et al (22.96%)[9] and Singal et al (17%).[10] In our study, PPH was found in 19.2% which was similar to Ghimire RH et al (16%). Very high rate of wound infection was found by Dare FO 69.2% [11] while we found wound infection in 8.6% which is similar to study by Riffat Jallel et al 7.8%.[12]

In our study, 38.6% babies born were low birth weight. Diversity is found in various studies in the prevalence of low birth weight babies including Rahman MA et al (35.5%),[13] Suryanaryana et al (25%),[14] Ragnekar et al (24.7%)[15] and Marahatta R et al (16.6%).[16] NICU admission was needed in 29.8% of cases in our study which was higher than the study by Nair et al (14.37%).[17]

CONCLUSION

Anemia is common in pregnant women presenting at tertiary hospital in Lumbini province, Nepal. Still majority of women are unbooked means lot of effort is needed to bring them to medical care from early pregnancy to improve outcome. Multigravida are more prone for anemia. Preterm delivery, maternal intensive care unit admission, maternal heart failure and postpartum hemorrhage is significantly higher in severe anemia. Low birth weight babies, intrauterine growth restriction, neonatal intensive care unit admission and neonatal death is common in pregnancy with anemia.

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