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ORIGINAL ARTICLE

Maternal Anemia as a Risk Factor for Preterm Delivery and Low Birth Weight

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ABSTRACT

Aim: Maternal anemia as a risk factor for preterm delivery and low birth weight
Methods: A cross-sectional study using pregnant women as participants to screen for pregnancy endpoints and perform a hemoglobin test. A logistic regression model was used. The adjusted odds ratios and 95% confidence intervals were utilized in this investigation to determine if maternal anemia, preterm labor and low birth weight were associated.
Results: The mean maternal age was 27.8±6.4 in anemic women and 28.2±5.9 in non-anemic women. Preterm birth was 26.3% in anemic women and 10% in women who were not anemic. Low birth weight babies accounted for 32.5% of the anemic group and 10% of non-anemic mothers gave birth to low birth weight babies.
Conclusion: Pregnant mothers who were anemic had a greater chance of having a low birth weight babies.
Keywords: Pregnancy, low birth weight, Labor

INTRODUCTION

Anemia affects half of all pregnant women in the world, with poor socioeconomic position in the Indian state of Jharkhand especially[1] Incidence of anemia in pregnant women in developed nations i.e. USA, UK, and Germany is from 9% to 51%[3].

According to the WHO, anemia ranges between 44% and 81% in poor nations such as Ghana, Sudan, Nepal, Bangladesh, Pakistan, and India. Anemia affects >70% of pregnant women in Pakistan[2].

METHODOLOGY

The consent request was granted by the Institutional Ethics Committee (IEC) of Khyber Medical University in Pakistan. Individuals were admitted to the study only after providing written consent. The study had a cross-sectional design and was done at Hospital's prenatal and delivery facilities in Pakistan. All pregnant women were screened and registered. From September 2020 to September 2021, enrollment period was held. 160 cases agreed to give a peripheral sample. Prenatal screening was collected from 160 participants by certified technical professionals. Additionally, birth outcomes (preterm, term) and delivery methods (normal or caesarean) were documented. We utilized the simplest approach available for establishing gestational age: symphysis-pubis fundal height (SFH) measurement.

Preterm birth occurs prior to the 37th week of pregnancy, while late preterm delivery occurs between 34 and 36 weeks. There were births of low birth weight (LBW) babies weighing <2500 grams. There were two groups of participants: those with anemia (Hb<12g/dl) and those without anemia (Hb >12g/dl). The four categories were noted. Mild anemia (Hb 10–11.8g/dl), moderate anemia (Hb 8–9.9g/l), severe anemia (Hb <8 g/l) and normal haemoglobin. SPSS analyzed the data.

RESULTS

Table 1:

Characteristics	Anemia	Non-Anemia	P Value
Maternal Age (yrs)	27.8 ±6.4	28.2 ±5.9	0.32
Parity			
1	19(23.8%)	16(20%)	0.54
2-4	33(41.2%)	38(47.5%)	
5+	28(35%)	26(32.5%)	
Delivery (Gestational weeks)			
<37 weeks	21(26.2%)	10(12.5%)	<0.01
<37-42 weeks	56(70%)	66(82.5%)	
42+ weeks	3(3.8%)	8(5%)	
Gender			
Boys	33(41.2%)	31(38.7%)	0.44
Girls	47(58.8%)	49(61.3%)	
Birth weight (gms)			
<2500	26(32.5%)	8(10%)	<0.01
2500-4000	51(63.7%)	68(85%)	
>4000	3(3.8%)	4(5%)	

Table 2:

Hemoglobin (g/dl)	n	Preterm birth				Low birth weight			
		n	%	95% CI	*P*	n	%	95% CI	*P*
Anaemic	80	21	26.3	1.9–5.8	<0.01	26	32.5	0.6–1.6	<0.01
Non-Anaemic	80	10	12.5	0.1–0.5		8	10	0.6–1.5	
Mild	20	3	15	1.8–6.4	<0.01	4	20	0.3–1.1	<0.01
Moderate	45	7	15.5	1.7–5.1		9	20	0.6–1.7	
Severe	15	11	73.3	2.1–11.3		13	86.6	1.1–5.5	
Normal	80	10	12.5	0.1–0.5		8	10	0.6–1.5	

DISCUSSION

According to the study, the examined population has the greatest prevalence of preterm delivery and low birth weight; the overall and stratified prevalence is frighteningly high in comparison to other Pakistani states and significantly higher than the national norm. While anaemia and its effect on birth outcomes have been associated with low socioeconomic level in general, a lack of education has been identified as a significant risk[4]. In other studies, it was observed that anemic women are less educated or lack formal education than non-anemic mothers. Women with a secondary or higher education are more conscientious of personal hygiene and cleanliness, and hence have a lower risk of anemia[5].

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In the current study, low hemoglobin concentrations were found to have a substantial effect on both preterm and LBW infants. Numerous social strata, and a lack of access to health resources and pregnant women's overall health, all contribute to this region's vulnerability and exposure to preterm and low birth weight.

Due to the association between anemia and preterm birth and low birth weight babies, we believe that all pregnant women are at increased risk of adverse birth outcomes in general, as well as PTB and LBW. Our data indicate that the most important health problem remains preterm and low-birth-weight newborns with anemia. Our findings regarding anemia in pregnancy corroborate Zhang et al[6] study that anemia identified early is more likely to signal a bad birth outcome than anemia discovered later in pregnancy. Anemia during the first trimester has been linked to a slight increase in the risk of preterm delivery in general. They observed a significant prevalence of severe and mild anaemia (41.5% and 38.1%, respectively), which is consistent with our findings. In other study, anemia prior to pregnancy is associated with an increased risk of delivery problems, such as preterm birth and low birth weight[7].

CONCLUSION

According to our research, preterm and low birth weight births are substantially associated with anaemia and its severity in the study group as a whole, and all stratified anaemia is associated with both preterm and low birth weight deliveries.

Conflict of interest: Nil

REFERENCES

1. A.I. Lee, M.M. Okam, Anemia in pregnancy, Hematol. Oncol. Clin. North Am., 25(2011), 241-259
2. M. Sohail, S. Shakeel, S. Kumari et al. Prevalence of malaria infection and risk factors associated with anaemia among pregnant women in Semiurban Community of Hazaribag, Jharkhand, India. Biomed. Res. Int., (2015), p. 740512
3. G.A. Stevens, M.M. Finucane, L.M. De et al. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: Lancet Glob. Health, 1 (2013), pp. e16-e25
4. R. Bora, C. Sable, J. Wolfson et al. Prevalence of anemia in pregnant women and its effect on neonatal outcomes in Northeast India J. Matern. Fetal Neonatal Med., 27(2014), pp. 887-891
5. M. Melku, Z. Addis, M. Alem, B. Enawgaw. Prevalence and predictors of maternal anemia during pregnancy in Gondar, Northwest Ethiopia: an Institutional based study. Anemia, 2014(2014), p.108593
6. Zhang Q, Ananth CV, G.G. Rhoads et al. The impact of maternal anemia on perinatal mortality: a population-based, prospective cohort study in China, Ann. Epidemiol., 19(2009), pp.793-799
7. Ren A, J. Wang, R.W. Ye et al. Low first-trimester hemoglobin and low birth weight, preterm birth and small for gestational age newborns, Int. J. Gynaecol. Obstet., 98(2007), pp.124-128.