

Prevalence of anemia in pregnant women and its correlates in a district hospital of Tamil Nadu: A hospital based cross sectional study

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Abstract

Background: Anemia during pregnancy is an important cause for maternal and perinatal morbidity and mortality worldwide more so in developing countries. The objective of the present study was to describe the prevalence of anemia among pregnant women attending antenatal check-up and also to identify the factors correlating with presence of anemia in a tertiary care teaching hospital in one of the districts of Tamil Nadu. **Methods:** A hospital based cross sectional study was conducted in the Department of Obstetrics and Gynecology in the Thiruvarur Medical College and Hospital, Tamil Nadu. The study was conducted between January 2017 and June 2017. Only those pregnant women whose gestational age was 37 weeks or more were included in the study. We followed following cut offs for defining anemia during pregnancy. The hemoglobin levels of >11 mg/dL was considered as normal, 10-11 mg/dL as mild, 7-9.9 mg/dL as moderate, and <7 mg/dL as severe anemia. **Results and Conclusion:** Our study showed that the prevalence of anemia was very high in this study setting. In the present study, most of the women were between 20-30 years old. In our study, 14.1% of the pregnant had mild anemia, 46.8% had moderate anemia and 9.1% had severe anemia. Prevalence of anemia increased with the increase in gravida and this was statistically significant (p value=0.011). As expected, the prevalence of anemia was higher in pregnant women residing in rural areas with those from urban area.

Key Words: anemia, pregnancy.

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that maternal anemia is an important cause leading to poor intra-uterine growth and low birth weight². Also, maternal anemia is a proven risk factor for preterm births and its associated morbidity and mortality. Hence, early detection during antenatal period or pre-pregnancy period and implementing effective management strategies will reduce maternal morbidity and mortality. Previous studies from India and other countries have shown that anemia is known to be associated with multiple factors; high parity, short birth interval, poor socioeconomic status, poor quality nutrition and inadequate quantity of nutrition, poor health awareness, and parasitic infestations³⁻⁸. The objective of the present study was to describe the prevalence of anemia among pregnant women attending antenatal check-up and also to identify the factors correlating with presence of anemia in a tertiary care teaching hospital in one of the districts of Tamil Nadu.

INTRODUCTION

Anemia during pregnancy is an important cause for maternal and perinatal morbidity and mortality worldwide more so in developing countries. According to World health organization (WHO) estimates, the prevalence of anemia during pregnancy is 14% in developed and 51% in developing countries respectively^{1,2}. It is well known

MATERIAL AND METHODS

A hospital based cross sectional study was conducted in the Department of Obstetrics and Gynecology in the Thiurvarur Medical College and Hospital, Tamil Nadu. The study was conducted between January 2017 and June 2017. Pregnant women attending the antenatal clinic in the district hospital were included the study. Only those pregnant women whose gestational age was 37 weeks or more were included in the study. Those mothers whose gestational age was less than 37 weeks or with multiple pregnancies were excluded. Information on age, gravida, parity, residence (urban or rural), educational status and

socio-economic status was collected using a pretested questionnaire. The interviews were conducted in the antenatal clinic when the pregnant women came for their routine antenatal visits. We followed following cut offs for defining anemia during pregnancy. The hemoglobin levels of >11 mg/dL was considered as normal, 10–11 mg/dL as mild, 7–9.9 mg/dL as moderate, and <7 mg/dL as severe anemia. These definitions are as per recommendations by the Indian Council of Medical Research (ICMR). Data from the questionnaire was entered in Microsoft Excel spreadsheet.

RESULTS

Table 1: Demographic and obstetric characteristics of study participants (n=220)

Characteristics	Frequency	Percentage
Mean (SD) age	24.4 (3.8) years	
Age categories		
18-20	43	19.6
21-25	69	31.4
26-30	100	45.5
>30	8	3.6
Gravida		
1	149	67.7
2	55	25.0
3	13	5.9
4	3	1.4
Residence		
Rural	137	62.3
Urban	83	37.7
Education		
Illiterate	12	5.5
Primary	29	13.2
Middle school	56	25.5
High school/Higher secondary	77	35.0
Graduate and above	46	20.9
Economic status		
APL	63	28.6
BPL	157	71.4

Table 2: Distribution of categories of anemia among study participants

Anemia category	Frequency	Percentage
Normal (>11)	66	30.0
Mild (10.0-10.9)	31	14.1
Moderate (7-9.9)	103	46.8
Severe (<7)	20	9.1

Table 3: Association of anemia and demographic variables in pregnant women

Characteristics	Normal (>11)	Mild (10.0-10.9)	Moderate (7-9.9)	Severe (<7)	P value
Age categories					
18-20	12 (27.9)	5 (11.6)	23 (53.5)	3 (7.0)	
21-25	21 (30.4)	11 (15.9)	32 (46.4)	5 (7.3)	0.354
26-30	33 (33)	12 (12)	45 (45)	10 (10)	
>30	0 (0)	3 (37.5)	3 (37.5)	2 (25)	
Gravida					
1	51 (34.2)	23 (15.4)	66 (44.3)	9 (6.0)	
2	12 (21.8)	6 (10.9)	31 (56.4)	6 (10.9)	0.011*
3	3 (23.1)	2 (15.4)	5 (38.5)	3 (23.1)	
4	0 (0)	0 (0)	1 (33.3)	2 (66.7)	
Residence					
Rural	35 (25.6)	17 (12.4)	75 (54.7)	10 (7.3)	0.026*
Urban	31 (37.4)	14 (16.9)	28 (33.7)	10 (12.1)	
Education					
Illiterate	0 (0)	2 (16.7)	6 (50.0)	4 (33.3)	
Primary	5 (17.2)	6 (20.7)	14 (48.3)	4 (13.8)	
Middle school	17 (30.4)	6 (10.7)	30 (53.6)	3 (5.4)	0.064
High school/Higher secondary	30 (39.0)	11 (14.3)	30 (39.0)	6 (7.8)	
Graduate and above	14 (30.4)	6 (13.0)	23 (50.0)	3 (6.5)	
Economic status					
APL	22 (34.9)	9 (14.3)	27 (42.9)	5 (7.9)	0.767
BPL	44 (28.0)	22 (14.0)	76 (48.4)	15 (9.6)	

*P value<0.05 and statistically significant

During the study period of January to June 2017, 220 pregnant women were interviewed and their hemoglobin values were measured. The mean age of the pregnant women was 24 years and the standard deviation was 3.8 years. Out of 220 mothers, nearly 20% belonged to the age group of 20 years or less. Majority of the pregnant women were between 20-30 years. More than two thirds (67.7%) were primi-gravida and about 60% of the women were residing in rural areas. More than half (56%) had an education of high school and above. Also, 70% of the pregnant women were from BPL families. Out of 220 pregnant women included in the study, 66 (30%) of them had their hemoglobin levels more than 11 gm/dl. 14.1% had mild anemia and 46.8% had moderate anemia. In total, 9.1 had severe anemia with hemoglobin values less than 7gm/dl. Though there were differences in prevalence of anemia in various age groups, these differences were not statistically significant (p value=0.354). Prevalence of anemia increased with the increase in gravida and this was statistically significant (p value=0.011). As expected, the prevalence of anemia was higher in pregnant women residing in rural areas with those from urban area. The prevalence of severe anemia (<7gm%) was about 33% in illiterate group compared to 14% in mothers who had primary schooling.

DISCUSSION

In India, though many control programs for anemia have been implemented since independence, anemia still remains an important problem especially in pregnancy contributing to morbidity and indirectly to maternal mortality. In developing countries such as India with a large population as well as poor nutritional indicators, anemia is very predominant and adversely affects both maternal and fetal outcomes. Anemia in pregnancy is directly linked with low birth weight, premature delivery and severe morbidity and mortality. Thus, good awareness among mothers, good nutritional diet and medication (iron and folic acid) are important to reduce the occurrence of anemia. In the present study, most of the women were between 20-30 years old, which is the average reproductive age in our geographical area. In our study, 14.1% of the pregnant had mild anemia, 46.8% had moderate anemia and 9.1% had severe anemia. Our study findings are comparable with the studies conducted by Sharma et al in Rajasthan and by Wadgav HV^{9,10}. In a study by Cheema et al., mild anemia was observed in 60% of the cases, moderate in 30.4% and severe anemia in 9.6%⁴. Similar levels of anemia were reported from Pakistan in which majority of the cases had mild anemia (75.0%), moderate anemia (14.8%) and severe anemia (0.7%)⁵. A study from rural Koppal, Karnataka found that 22.47% had mild anemia, 56.30% had moderate anemia, 14.98% had severe anemia and 2.73% very severe anemia

according to ICMR classification of anemia¹¹. A similar study by Dayalin south India reported a prevalence of 19.2% mild, 41.4% moderate and 2.5% severe anemia in pregnant women³. Generally, anemia in pregnancy increases with rising parity, due to repeated drain on iron stores. Our study findings also confirmed the hypothesis that with increase in number of pregnancies, the prevalence of anemia also increased indicating the depletion of iron stores due to successive pregnancies. Our study has some limitations .We did not collect information on intake of iron and folic acid tablets during the current pregnancy and also we did not assess the dietary intake of iron rich foods.

CONCLUSION

Our study showed that the prevalence of anemia was very high in this study setting. This high prevalence of anemia will adversely affect both maternal and fetal outcome. There is a need to prevent incidence of anemia in pregnant women by providing iron tablet, food supplements, and better antenatal care services.

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