ANAEMIA IN PREGNANT WOMEN- A COMMUNITY-BASED STUDY IN TEA GARDEN AREAS OF CACHAR DISTRICT, ASSAM

Debojit Chutia[1], Pushpita Barman[2]

[1]Associate Professor, Department of Community Medicine, Silchar Medical College and Hospital, Silchar.
[2]Demonstrator, Department of Community Medicine, Silchar Medical College and Hospital, Silchar.

ABSTRACT

BACKGROUND

India is one of the countries with very high prevalence of anaemia in the world. In India, almost 59% of pregnant women are anaemic and it accounts for 20-40% of total maternal deaths. Anaemia in pregnancy is one of the major risks and associated with abortions, premature births, postpartum haemorrhage and low birth weight. In view of the above, the present study was carried out to find out the prevalence of anaemia amongst pregnant women and sociodemographic factors associated with anaemia in pregnancy.

MATERIALS AND METHODS

A community-based cross-sectional study was carried out among 200 pregnant women with gestational period 12-20 weeks attending the antenatal sessions in 4 tea garden areas under Dholai BPHC, Cachar District, for 6 months from April 2016 to September 2016. Data were presented in proportion, mean and standard deviation. Association was seen by using Chi-square test and Fischer's exact test.

RESULTS

Among 200 pregnant women, majority (38.5%) were in 20-24 years of age, 98% Hindu by religion and 56% from class IV socioeconomic class. Regarding the educational status, 34.5% were educated up to primary school, while 33.5% were illiterate. Majority, i.e. 45.5% and 31.5% were having parity 0 and 1, respectively. Prevalence of anaemia in the present study was found to be 81% and among which 77.2% were moderately anaemic. The study showed significant association of anaemia among pregnant women with lower socioeconomic status and high parity.

CONCLUSION

In the present study, there is high prevalence (81%) of anaemia among pregnant women. The study also noted that lower socioeconomic status and high parity had a significant role in anaemia during pregnancy. So, there is a need to intensify IEC activities to promote early antenatal care, increased compliance of intake of iron and folic acid tablets, dietary modification and utilisation of family planning services among pregnant women of this region.

KEYWORDS

Anaemia, Pregnant Women, Tea Garden, Cachar District.

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BACKGROUND

Anaemia in pregnancy continues to be one of the important public health problems in India. Among the developing countries, the prevalence of anaemia in pregnancy is one of the highest in India. According to National Family Health Survey-3 (NFHS-3), prevalence of anaemia in pregnancy is around 59% and 50.3% according to NFHS 4.[1,2]

Anaemia in pregnancy is defined by WHO as a condition where haemoglobin concentration in blood is below 11 g/dL and is said to be mild when haemoglobin level is between 10 to 10.9 g/dL, moderate when it is between 7 to 9.9 g/dL and severe when it is less than 7 g/dL.[3]

In India, anaemia is the second most common cause of maternal deaths accounting for 20% of total maternal deaths.[4]

Anaemia in pregnancy is a major factor responsible for low birth weight. Anaemia affects mainly the women in child bearing age group, young children and adolescent girls. The main causes of anaemia in the developing countries include deficiency of iron intakes and poor absorption, hook worms infestation, infections such as malaria, blood loss during delivery and heavy menstrual blood loss.[5,6] Association of anaemia with adverse maternal outcome such as puerperal sepsis, antepartum haemorrhage, postpartum haemorrhage and maternal mortality is no longer a debatable subject.[7] Apart from the risk to the mother, it is also responsible for increased incidence of premature births, low birth weight babies and high perinatal mortality.[5,8]

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Corresponding Author:
Dr. Debojit Chutia,
Associate Professor, Department of Community Medicine,
Silchar Medical College and Hospital,
Silchar P.O., Ghungoor-788014, Cachar, Assam.
E-mail: drdebojit@gmail.com
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India became the first developing country to take up a National Nutritional Anaemia Prophylaxis Program (NNAPP) to prevent anaemia among pregnant women. NNAPP was initiated in 1970 during the fourth 5-year health plan with the aim of reducing the prevalence of anaemia to 25%.[9]

In view of the above, the present study was carried out to find out the prevalence of anaemia amongst pregnant women and sociodemographic factors associated with anaemia in pregnancy.

MATERIALS AND METHODS

A community-based cross-sectional study was carried out among pregnant women attending the antenatal sessions in 4 tea garden areas under Dholai BPHC, Cachar District, for 6 months from April 2016 to September 2016.

Taking the prevalence of maternal anaemia 59%,[10] taking 7% relative error and 95% confidence interval, the sample size was calculated to be 197.47; which was rounded up to 200.

Study Design- Pregnant women with gestational period 12-20 weeks residing in tea garden area under Dholai BPHC and attending ANC clinics were interviewed using a predesigned and pretested proforma.

Number of pregnant women included from each tea garden was determined by using proportional allocation. In each of the tea garden, the pregnant women attending ANC clinics were included consecutively until the required number of study subjects was obtained.

Exclusion Criteria

Pregnant women not willing to respond even after requesting and severely ill were excluded from the study.

Ethical Consideration- Informed verbal consent was obtained from the study participants prior to the enrolment in the study. Ethical clearance was obtained from the Institutional Ethics Committee of Silchar Medical College prior to commencement of the study.

Study Tool- Haemoglobin estimation was done by using Sahli's method. Anaemia was classified as per WHO criteria.[11] Haemoglobin below 11 g/dL was labeled as anaemia during pregnancy.

Socioeconomic status of the adolescent girls was assessed by using updated BG Prasad Socioeconomic Classification, 2014.[12]

Statistical Analysis

Data was entered and analysed by SPSS V-16.0. Data were presented in proportion, mean and standard deviation. Association was seen by using Chi-square test and Fischer's exact test.

RESULTS

In the present study, 200 pregnant women were studied. The sociodemographic profile of the study population is shown in Table 1.

Sociodemographic Characteristic		Number	Percentages
Age	<20	40	20
	20-24	77	38.5
	25-29	53	26.5
	>30	30	15
Caste	General	29	14.5
	OBC	86	43
	SC	83	41.5
	ST	2	1
Religion	Hindu	196	98
	Muslim	4	2
Type of family	Joint	87	43.5
	Nuclear	113	56.5
Education	Illiterate	67	33.5
	Primary school	69	34.5
	Middle school	41	20.5
	High school	22	11
	Higher secondary	1	0.5
Socioeconomic status	II	5	2.5
	III	24	12
	IV	112	56
	V	59	29.5
Parity	0	91	45.5
	1	63	31.5
	2	29	14.5
	3	12	6
	4	5	2.5

Table 1. Sociodemographic Characteristics of Pregnant Women (n=200)

Majority (38.5%) of them were in 20-24 years of age with the mean age 24.36 ± 4.63 years of age. More than half, i.e. 98% were Hindus, 56.5% were from nuclear family and 56% were from class IV socioeconomic class.

Regarding the educational status, 34.5% were educated up to primary school, while 33.5% were illiterate. Majority, i.e. 45.5% and 31.5% were having parity 0 and 1, respectively.

Mean Hb% of study participants was 9.64 ± 1.3. In our study, large proportion (81%) of pregnant women were anaemic, and among them, 20.9%, 77.2% and 1.9% were mild, moderate and severely anaemic, respectively (Figure 1 and 2).

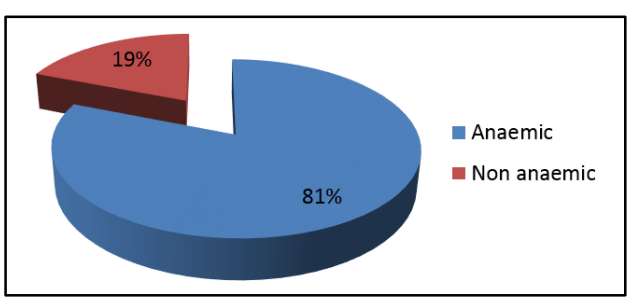

Figure 1. Prevalence of Anaemia Among Pregnant Women (n=200)

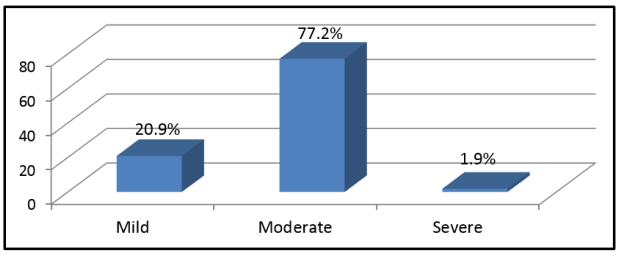

Figure 2. Severity of Anaemia among Anaemic Pregnant Women (n=162)

Regarding the correlation between different sociodemographic parameters and anaemia, the study observed that prevalence of anaemia among pregnant women was increasing significantly with lowering of socioeconomic class (p=0.000) and high parity 3 and 4 (p=0.036).

The prevalence of anaemia was found to be more among pregnant women aged <20 years and >30 years. However, this observed difference was statistically not significant.

In this study, anaemia was not found to be significantly associated with type of family and educational status (Table 2).

Sociodemographic Factors		Total	Anaemia		P Value
			Absent	Present	
Age (in years)	<20	40	7 (17.5%)	33 (82.5%)	0.095 (Chi-square - 6.36, df - 3)
	20-24	77	17 (22.1%)	60 (77.9%)	
	25-29	53	13 (24.5%)	40 (75.5%)	
	>30	30	1 (3.3%)	29 (96.7%)	
Type of family	Joint	87	13 (4.9%)	74 (85.1%)	0.19 (Chi-square - 1.64, df - 1)
	Nuclear	113	25 (22.1%)	88 (77.9%)	
Education	Illiterate	67	9 (13.4%)	58 (86.6%)	0.13 (Chi-square - 7.042, df - 4)
	Primary school	69	16 (23.2%)	53 (76.8%)	
	Middle school	41	9 (22%)	32 (78%)	
	High school	22	3 (13.6%)	19 (86.4%)	
	Higher secondary school	1	1(100%)	0 (0%)	
SES	II	5	4 (80%)	1 (20%)	0.000* (Chi-square - 18.80, df - 3)
	III	24	6 (25%)	18 (75%)	
	IV	112	24 (21.4%)	88 (78.6%)	
	V	59	4 (6.8%)	55 (93.2%)	
Parity	0	91	24 (26.7%)	67 (73.6%)	0.036* (Chi-square - 10.25, df - 4)
	1	63	7 (11.1%)	56 (88.9%)	
	2	29	7 (24.1%)	22 (75.9%)	
	3	12	0 (0%)	12 (100%)	
	4	5	0 (0%)	5 (100%)	

Table 2. Association of Anaemia with Different Sociodemographic Factors

*P value <0.05 at 95%; CI is considered significant.

DISCUSSION

In this study, we found a high prevalence (81%) of anaemia among pregnant women, which was higher than the national average 50.3% (NFHS4) indicating poor maternal and child healthcare in the region. Similar finding was observed in studies[13,14,15] done in different settings of country.

Regarding the degree of anaemia, majority of them were suffering from moderate anaemia (77.2%) followed by mild anaemia (20.9%) while severe anaemia 1.9%. Our results is similar with study done by Kumar V (2014) et al in which majority of study subjects 49.6% were suffering from moderate degree of anaemia and 16.8% were mildly anaemic, while none of the women had severe degree of anaemia.[16] But, our finding is in contrast with the finding of Rai N et al (2016)[15] study where the proportion of mild anaemia is higher.

In our study, the association of anaemia with socioeconomic classes was found to be statistically significant (p=0.000) and it come out to be important risk factor in development of anaemia in pregnancy. This might be due to availability and affordability of high quality food with better socioeconomic status.[15] Similar observation has also been documented by other authors in their study.[15,17]

The current study revealed that anaemia is significantly more common in multiparous women than primi and nulliparous, which is in concordance with other studies.[15,16] This is because multiparous women tend to have greater menstrual losses that increases with parity.[15]

In relation to the age of women, prevalence of anaemia was found to be more among pregnant women aged <20 years and >30 years. However, this observed difference was statistically not significant. Similarly, Rai N et al[15] and Lokare PO et al[17] also observed that difference was not statistically significant.

It is evident from the current study that there was no significant association between anaemia and type of family.

In the present study, we have not found any significant association of anaemia with educational attainment of the women. Kumar V et al[16] also did not find any significant association between anaemia and educational status of the women, which is consistent with our finding.

CONCLUSION

In light of the above observations, we conclude that prevalence of anaemia in pregnant women was found to be high among tea garden pregnant women, especially among low income group and multiparous women indicating inadequate maternal and child healthcare services in the study areas. This may be due to underutilisation of healthcare services by tea garden women, poor dietary intake and poor personal hygiene.

So, there is a need to intensify IEC activities and strengthen IPC activities by grass root level workers like ASHA, ANM to promote early antenatal care, increase compliance of intake of iron and folic acid tablets, dietary modification and utilisation of family planning services and also holding focus group discussion for antenatal mothers in VHND sessions in tea garden area to all pregnant women of tea garden areas with special focus to the pregnant women belonging to low income group and multiparous women.

Efforts should be aimed towards the early detection and treatment of anaemia before delivery. Medical staff managing the antenatal women should attempt to investigate anaemic pregnant women, so that the aetiology can be investigated whenever possible. All these efforts would help to ensure safe motherhood.

Prevention of anaemia in pregnancy will go a long way to help in preventing maternal complications in postpartum state like mortality and also will ensure a healthy baby and a healthy mother as an outcome.

Limitation of Study- Though hookworm infestation has a significant role in anaemia especially in tea garden areas where habits of working with barefoot and open air defecation are still prevailing, but in our study, we could not collect information regarding worm infestation.

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