ORIGINAL ARTICLE

A study on status of anaemia in pregnant women attending urban health training centre, RIMS, Ranchi

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Abstract	Introduction	Methodology	Results	Conclusion	References	Citation	Tables / Figures

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Citation

Abstract:

Background: Anaemia in pregnant women has been regarded as very dangerous as it causes many maternal, fetal and neonatal complications. Fetal growth and pregnancy outcome largely depend upon the status of anaemia in pregnant women. Anaemia affects pregnant women all over the world - 52% in developing countries compared with 23% in the developed world. The difference in prevalence of anaemia in different parts of India including Jharkhand can be attributed to the different factors. A knowledge of these factors associated with anemia will help to formulate multipronged strategies to curtail this important public health problem in pregnancy. **Aims & Objectives:** (1) To know the socio-demographic profile of pregnant women attending Urban Health and Training Centre (UHTC), RIMS, Ranchi. (2) To know the status of anaemia among those pregnant women and its association with different factors. **Material & Methods:** A descriptive cross-sectional study done at ANC clinic of UHTC, RIMS, Ranchi to determine the status of anaemia in pregnant women and various socio-demographic factors associated with it. Hemoglobin level of 149 pregnant women selected by consecutive sampling was estimated by Cyanmethemoglobin method. **Statistical Analysis:** Template generated in MS excel sheet and analysis was done on SPSS software. **Result:** Out of total 149 pregnant women anaemia was found to be present in 99 (66.4%) women. A statistically significant association of anaemia (p<.05) was found with parity and birth interval from last birth. But the association of anaemia with ethnicity, education and other factors like gestational age (trimester) was not found to be statistically significant (p>.05). **Conclusion:** Occurrence of anaemia was much higher in this area as compared to national average. It indicates that the anaemia continues to be a major public health problem. Efforts should be geared towards the early detection and treatment of anaemia before delivery.

Key Words

Anaemia; Pregnant women; Prevalence; India

Introduction

Anaemia is one of the important factor which decides the outcome of pregnancy.[1] Anaemia in pregnant women has been regarded as detrimental to the fetal growth and pregnancy outcome. [2-5] Indeed Anaemia in Pregnancy is a known factor for many maternal complications such as premature labor, poor weight gain and dysfunctional labor and fetal and neonatal complications such as prematurity, low birth weight, fetal and neonatal distress etc. requiring prolong resuscitation and causing neonatal anaemia due to poor reserve.[6,7] It affects pregnant women all over the world - 52% in developing countries compared with 23% in the developed world.[8]

India has reported high prevalence of anaemia in pregnancy. In one of the studies conducted on a large population, it was estimated that 87% of the Indian pregnant women are anaemic. This figure is the highest among the neighboring South East Asian countries.[2] According to NFHS-3 68.4% of pregnant women are anaemic in Jharkhand compared to 57.9% at the national level.[9] The difference in

prevalence of anaemia in different parts of India including Jharkhand can be attributed to the different factors. A knowledge of these factors associated with anemia will help to formulate multipronged strategies to curtail this important public health problem in pregnancy. In view of the above, the present study was carried out to find out the status of anaemia in pregnant women and various factors associated with it.

Aims & Objectives

1. To know the socio-demographic profile of pregnant women attending Urban Health and Training Centre (UHTC), RIMS, Ranchi.
2. To know the status of anaemia among those pregnant women and its association with different socio-demographic factors.

Material and Methods

This study was a descriptive cross-sectional study done at UHTC, RIMS, Ranchi to determine the status of anaemia in pregnant women and various socio-demographic factors associated with it. The UHTC is situated in a crowded area of the city and provides medical care to the majority of the inhabitants. The total population covered by this center is approximately 1.60 lakh. The Ante Natal Care (ANC) clinic is conducted daily in this UHTC. Registration of the pregnant women visiting the ANC clinic is maintained by the health worker separately for the first and the subsequent visit of the pregnant women. The study was carried out from March 2014 to May 2014. A total of 156 pregnant women were contacted for the study by consecutive sampling method in the month of April 2014. Seven did not want to participate so the sample size came out to be 149. A pre-tested, semi-structured questionnaire including objective type items were used for data collection. Informed consent were taken prior to data collection and blood sampling from each subject. Two ml of blood samples were collected from each subject and then transported to the laboratory in EDTA vial. Hemoglobin levels of individual samples were estimated by the Cyanmethemoglobin method.[10] According to World Health Organization (WHO), hemoglobin level below 11 g/dL is labeled as anaemia during pregnancy and classified as mild (10.0–10.99 g/dL), moderate (7.0– 9.9 g/dL), and severe (<7.0 g/dL) anaemia. The same criteria were used in this study for classifying anaemia in pregnancy.[11]

Template generated in MS excel sheet and analysis was done on SPSS software version 13. Frequency distribution and chi-square test was done to see the association between anaemia and selected socio-demographic factors.

Ethical approval: Study was conducted after approval from Institutional Ethical Committee, RIMS, Ranchi.

Results

In our study, out of total 149 women studied, maximum number of study subjects were in 25-34 years of age group [77, 51.7%] and the least common age group was 35-45 years of age[6, 4%]. Mean age of the pregnant women was found to be 25.14 years (SD 4.23). Most of the women, were non-tribal [122, 81.9%]. Majority were Hindu [70, 47%] followed by Muslim [56, 37.6%], Sarana [13, 8.7%] and Christian [9, 6.0%]. They mostly came from urban area [135, 90.6%] having less than primary level of education [82, 55.2%]. Most of them were housewife [135, 90.6%] and belonging to lower Socio-economic class (SEC) i.e class IV and V of Revised Prasad's Classification for 2014 [124, 83.2%]. [Table 1]

It was observed that most common group of the pregnant women were primigravida [55, 36.9%] followed by second [46, 30.9%], third [27, 18.1%] and fourth gravida [12, 8.0%]. As far as parity is concerned, we found nullipara being most common [57, 38.2%] followed by multipara [48, 32.2%] and primipara [44, 29.5%]. So the women who had given previous birth were 61.7% (92). [Figure 1, 2]There were two abortion cases.

In this study we observed that of total 149 subjects enrolled, 99 (66.4%) subjects were anaemic, with mild degree of anaemia in 25 (16.8%) subjects and moderate anaemia in 74 (49.6%) subjects. None of the subjects were found to be severely anaemic. The overall mean of Hb was 10.17g/dl (SD 1.278) with a range from 7.5 to 12.8g/dl.[Table 2]

A statistically significant association of anaemia (p<.05) was found with parity and birth interval from last birth. It was observed that 81.2% of the multipara were anaemic when compared to 65.9% and 54.4% of primipara and nullipara respectively. And anaemia was found to be high (85.0%) among those pregnant women who had birth interval of <18 months when compared with those with birth interval of 18-35 months (71.0%) and ≥36 months (47.6%). [Table 3]

In our study we found that anaemia was slightly more common in tribal group (74.1%) than the non-tribal one (64.8%). It was also found that anaemia was present in 67.6% of illiterate women, 73.3% among those who were having up to primary level of education, 55.8% in up to secondary level educated and 80.0% among those who have attended college. We also observed that anaemia was more common in 1st trimester (75.0%) than 2nd (67.2%) and 3rd trimester (55.8%). But the association of anaemia with ethnicity, education and other factors like gestational age (trimester) was not found to be statistically significant (p>.05). [Table 4]

Discussion

In this study we aimed at describing the status of anaemia in pregnant women and various socio-demographic factors associated with it. The present study revealed a high prevalence of anaemia (66.4%) among pregnant women which indicates that the anaemia continues to be a major public health problem. It is also an indicator of the failure of programmes to address this problem. The finding represents the lower rate of prevalence of anaemia when compared with the other studies conducted by Nadeem Ahmad in rural population of Maharastra (74.84%) , studies carried out in the rural areas of Delhi by Virender (96.5%) and study carried out by G.S.Toteja et al (84.9%). [12,13,14] However it is higher than that found by Panghal et al (51.0%) and similar study conducted in South-east China (39.6%). [15,16]

In this study we observed that of total 149 subjects enrolled, 16.8% subjects had mild degree of anaemia and 49.6% subjects were having moderate anaemia. None of the subjects were found to be severely anaemic. In other similar studies in India severe anaemia was found in 22.8% by V.P Gautam et al, 13.1% by G.S Toteja et al, 8.3% by Raman L et al and only 1.6% by Umesh Kapil et al.[13,14,17,18]

We also found that there was no significant difference in anaemia according to education level of the women which is in contrast with the other studies in which severity of anaemia was found to be inversely related to educational status.[13, 16, 19]

Although statistically not significant, anaemia was seen to be more common in 1st trimester which may be due to lower pre-pregnant or adolescent haemoglobin level.

It was found that anaemia was significantly more common among multipara women (81.2%) than primi and nullipara which is similar to other study.[13] Anaemia was also found to be significantly associated with the birth interval. It is more among women with birth interval ≤18 months. Similar results were found by other researchers.[13] So in this study, the birth interval and para status come out to be important risk factors in the development of anaemia in pregnancy

Conclusion

To conclude, occurrence of anaemia was much higher in this area as compared to national average. It indicates that the anaemia continues to be a major public health problem. It was seen to be more common in 1st trimester which may be due to lower pre-pregnant or adolescent Hb level. Ethnicity, education level of the mother and period (trimester) of pregnancy did not seem to be associated with maternal anaemia. Although higher parity and close birth spacing were adversely associated with anaemia in pregnancy.

Recommendation

The study highlights the need for preconception care and broadening the coverage of Iron and Folic acid distribution and its consumption. Efforts should be geared towards the early detection and treatment of anaemia before delivery. This should be supported by programs for the prevention of anaemia among adolescent girls through nutrition education and anaemia prophylaxis. Awareness should be increased regarding small family norm as higher para status is associated significantly with anaemia. Birth interval between two births should be increased by IEC activities.

Authors Contribution

VK: Conception and design, Data collection and analysis, Interpretation of data, Drafting. **SS:** Conception and design, Interpretation of data, Drafting. **SH:** Conception and design, Review, Approval. **VK:** Conception and design, Review, Approval.

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Tables

TABLE 1: ASSOCIATION OF ANAEMIA WITH VARIOUS DEMOGRAPHIC CHARACTERS

Variables		Anaemia not present(n=50)	Anaemia present(n=99)	Total (n=149)
Age	15-24	25	41	66
	25-34	22	55	77
	35-45	3	3	6
Ethnicity	Tribal	7	20	27
	Non-tribal	43	79	122
Religion	Hindu	16	54	70
	Muslim	27	29	56
	Christian	2	7	9
	Sarna	5	8	13
	Sikh	0	1	1
Area of residence	Rural	44	91	14
	Urban	6	8	135
Education	Illiterate	12	25	37
	Primary	12	33	45
	Secondary	23	29	52
	College and above	3	12	15
Occupation	Housewife	44	91	135
	Government service	3	1	4
	Farming	2	0	2
	Others	1	7	8
Socio-economic class*	Class I	0	0	0
	Class II	3	5	8
	Class III	5	12	17
	Class IV	20	32	52
	Class V	22	50	72
*Revised Prasad's Classification For 2014				

TABLE 2: SEVERITY OF ANAEMIA IN PREGNANT WOMEN

Severity of anaemia		Frequency	percentage	Total
No anaemia		50	33.5	50(33.5%)
Anaemia	Mild	25	16.8	
	Moderate	74	49.7	99(66.5%)
	Severe	0	0	

TABLE 3: DISTRIBUTION OF ANAEMIA IN PREGNANT WOMEN ACCORDING TO PARITY AND BIRTH INTERVAL

Variables		Anaemia not present	Anaemia present	Total	Chi square test
Parity	Nullipara	26(45.6%)	31(54.4%)	57 (100%)	Chi square=8.422 df=2 p-value=.015
	Primipara	15(34.1%)	29(65.9%)	44 (100%)	
	Multipara	9(18.8%)	39(81.2%)	48 (100%)	
	Total	**50(33.6%)**	**99(66.4%)**	**149(100%)**	
Birth interval	<18 months	6(15.0%)	34(85.0%)	40 (100%)	Chi square=9.505 df=2 p-value=.0086
	18-35 months	9(29.0%)	22(71.0%)	31 (100%)	
	≥ 36 months	11(52.4%)	10(47.6%)	21 (100%)	
	Total	**26(28.3%)**	**66(71.7%)**	**92(100%)**	

TABLE 4: DISTRIBUTION OF ANAEMIA IN PREGNANT WOMEN ACCORDING TO ETHNICITY, EDUCATION AND GESTATIONAL AGE

| Variables		Anaemia not present	Anaemia present	Total	Chi square test
Ethnicity	Tribal	7(25.9%)	20(74.1%)	27(100%)	Chi square=.861 df=1 p-value=.353
	Non-tribal	43(35.2%)	79(64.8%)	122(100%)	
	Total	**50(33.6%)**	**99(66.4%)**	**149(100%)**	
Education	Illiterate	12(32.4%)	25(67.6%)	37 (100%)	Chi square=4.873 df=3 p-value=.181
	Primary	12(26.7%)	33(73.3%)	45 (100%)	
	Secondary	23(44.2%)	29(55.8%)	52 (100%)	
	College and above	3(20.0%)	12(80.0%)	15 (100%)	
	Total	**50(33.6%)**	**99(66.4%)**	**149(100%)**	
Trimester	First	12(25.0%)	36(75.0%)	48 (100%)	Chi square=3.772 df=2 p-value=.152
	Second	19(32.8%)	39(67.2%)	58 (100%)	
	Third	19(44.2%)	24(55.8%)	43 (100%)	
	Total	**50(33.6%)**	**99(66.4%)**	**149(100%)**	

Figures

FIGURE 1: GRAVIDA STATUS OF PREGNANT WOMEN
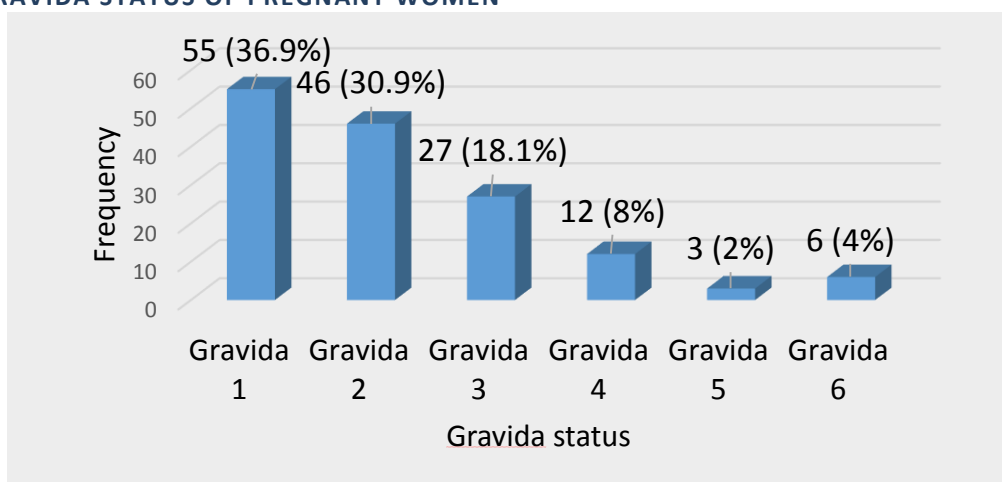
FIGURE 2: PARITY OF PREGNANT WOMEN