



**PREVALENCE OF ANEMIA AND KNOWLEDGE OF RISK FACTORS ABOUT ANEMIA
IN PREGNANT WOMEN: A STUDY AT PRIMARY HEALTH CENTERS IN RURAL
AREAS OF NORTH INDIA**

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Article Received on 11/11/2017

Article Revised on 01/12/2017

Article Accepted on 21/12/2017

ABSTRACT

Background: Anemia is one of contributing factor for morbidity and mortality during pregnancy in developing country and has fetal and maternal consequences. Growing baby depends completely on mothers for all needs. Anemia is one of nutritional deficiency disorder and around 56% of women are suffering from anemia. Anemia is one of the reasons for maternal deaths. The study was aimed to assess the prevalence of anemia and to determine the knowledge of antenatal mothers regarding the risk factors of anemia during pregnancy. **Material and Methods:** Research study was conducted on Antenatal women who were attending and admitted in primary health centers. A sample size consists of 250 pregnant mothers were selected through non probability purposive sampling. The data was collected by using pretested structured knowledge questionnaire, to assess the knowledge of pregnant women regarding the risk factors of anemia during pregnancy. Shale's haematin method is used to assess the range of hemoglobin. Anemia was classified according to world health organization criteria. Data was analyzed using SPSS v. 17. **Result:** Among 250 samples, the prevalence of anemia is 56.8% including mild, moderate and severe anemia. The majority of pregnant mothers had poor 50%, 34.4% had satisfactory and 14.4 %had good and 1.2% had excellent knowledge on risk factors of anemia. **Conclusion:** Higher prevalence of anemia indicate the regularly and strictly implementation of nutritional anemia programme in hospital and community. By implementing educational teaching strategy will enhance the awareness about the prevention of anemia among pregnant mothers.

KEYWORDS: Prevalence, Knowledge, Pregnant Mother, Anemia, Primary Health Centers.

INTRODUCTION

Anemia is major health problems in developing countries. In pregnancy, anemia is major public health concern. Anemia is decrease in concentration of red blood cells, which result in reduced in oxygen carrying capacity of blood^[1] whereas in pregnancy plasma volume increase which lead to dilution of hemoglobin. Different causes of anemia are reduced absorption of iron, dengue, malaria, inadequate intake of diet, diarrhea, and thalasemia, sickle cell anemia, excessive blood loss during labor etc.^[2,3] Anemia is commonly prevalent in young children and pregnant women. Risk of iron deficiency anemia will lead to perinatal and maternal morbidity and mortality.^[4] During pregnancy hemoglobin concentration less than 7.0g/dl is consider severe, moderate falls between 7.0 and 9.9 g/dl while 10.0 to 11g/dl is considered as mild anemia.^[5,6] Intake of elemental iron tablet (100mg) with 500mcg folic acid for 100 days will prevent the risk of iron deficiency anemia. According to World Health Organization, female having

more risk of disability and adjusted life year (15 to 44 years) due to the iron deficiency.^[7,8] Deficiency of hemoglobin lead to 20% of total maternal deaths.^[9] The present research study was designed to estimate the prevalence, knowledge on risk factors of anemia among pregnant women attending primary health centers North India. Therefore this study was conducted to assess prevalence of anemia and knowledge of risk factors about anemia in pregnant women.

MATERIAL AND METHODS

Study was conducted on the pregnant women who are attending primary health centers by using purposive sampling. Oral consent was taken from the mother. The sampling procedure started in July 2016 and ended in March 2017. Total sample of study subject was 250 pregnant women, interviewed by using self-structured questionnaire, including prime gravid, second gravid and multigravida. The tool used for the study was demographic variable and structure knowledge

questionnaire consisted 30 items. Shale's haematin method of hemoglobin was used for each pregnant mother who was attending or admitted in Hospital. The diagnosis of anemia were made as per the classification of world health organization i.e hemoglobin concentration less than 7.0g/dl is consider severe, moderate falls between 7.0 and 9.9 g/dl and hemoglobin concentration 10 to 11g/dl is considered mild anemia among pregnant mother.

Inclusion criteria: The study subjects age of less than 18 years to >30 years. We had also observed the finding of Hemoglobin from the diagnostic test.

Exclusion criteria: Study group exclude the women who had bleeding disorder, or antepartum hemorrhage and chronic medical disease were excluded.

Statistical analysis

Data were analyzed by using SPSS Version 17.0 and chi square test for categorical data were performed. If $p < 0.05$, statistical value is consider significant.

RESULT

The total study sample comprised of 250 pregnant women. Among them 142 pregnant women (56.8%) suffered with mild, moderate and severe anemia. Table 1, shows that high prevalence of anemia found in pregnant women who belongs to age group 20-24 years, 55% of pregnant women having low education status were found to be anemic and 48% primigravida mothers have anemia. Based on structured knowledge questionnaire regarding the management of Anemia, Table 2 shows that 86(34.4%) of pregnant women have average and 125 pregnant women (50%) of mothers have poor knowledge for the prevention of anemia. Table 3 represent the Chi square test association with knowledge on management significant relation with religion ($p < 0.02$), education status of mother ($p < 0.001$) and monthly income of family ($p < 0.02$). Significant socio demographic factor affect the knowledge of risk factors of anemia.

Table. 1: Distribution of Anemia in Study Group According to Age, Education, Occupation & Parity.

Groups		Severity of Anemia								
		Normal			Mild		Moderate		Severe	
		F	N	%	N	%	N	%	N	%
Age group	< 20	6	1	0.4	1	0.4	3	1.2	1	0.4
	20-24	116	40	16	30	12	40	16	6	2.4
	25-29	102	52	20.8	30	12	16	6.4	4	1.6
	30-34	23	13	5.2	5	2	3	1.2	2	0.8
	35 and above	3	2	0.8	1	0.4	0	0	0	0
Education	Non-Literate	23	01	0.4	4	1.6	16	6.4	2	0.8
	Primary education	113	58	23.2	20	8.0	34	13.6	1	0.4
	Secondary education	66	27	10.8	29	11.4	9	3.6	1	0.4
	Graduate and above	48	22	8.8	17	6.6	7	2.8	2	0.8
Parity	Primi Gravida	126	58	23.2	28	11.2	38	15.2	2	0.8
	Multi Gravida	97	40	16	25	10	29	11.6	3	1.2
	More than two	27	10	4	6	2.4	9	3.6	2	0.8

Table. 2: Frequency and Percentage Distribution in Terms of Knowledgescore regarding risk factors of Anemia in Antenatal Mothers. N= 250

Level of Knowledge	Score	F	%
Excellent	24-30	3	1.2
Good	19-23	36	14.4
satisfactory	15-18	86	34.4
Poor	0-14	125	50

Table. 3: Association between Knowledge on management of anemia with Selected Sample Characteristics among Pregnant women N=250.

Sr. No	Sample Characteristics	Knowledge Scores		df	Chi- square	p value
		Above median	Below median			
1	Age in (years)					
	18-19	03	03	4	2.22	0.69 ^{NS}
	20-24	75	40			
	25-29	59	45			
	30-34	11	09			
	35 and above	03	02			
2.	Religion					
	Hindu	123	86	4	9.27	0.02*
	Muslim	02	06			
	Sikh	24	06			
	Christian	02	01			
	Others					
3.	Educational Status of mother					
	Non-Literate	08	13	3	16.42	0.001*
	Upto Primary education	60	55			
	Upto Secondary education	42	20			
	Graduate and above	41	11			
4.	Occupation					
	Self-employers	05	02	4	3.56	0.47 ^{NS}
	Private job	07	03			
	Government job	03	00			
	Home maker	135	94			
	Daily worker	0	00			
5.	Monthly income of family(in rupees)					
	1001-5000	45	33	2	7.97	0.02*
	5001-10,000	58	50			
	Above 10,000	48	16			
6.	Gravida					
	Primi	85	45	2	2.98	0.23 ^{NS}
	Multi	48	41			
	More than two	18	13			
7.	Trimester of current pregnancy					
	1 st trimester	23	15	2	0.31	0.86 ^{NS}
	2 nd trimester	59	42			
	3 rd trimester	69	42			
8.	Nature of current pregnancy					
	Single	150	98	1	0.09	0.76 ^{NS}
	Twin	01	01			
	Multiple	00	00			
9.	Number of antenatal visit					
	1	31	20	2	0.04	0.98 ^{NS}
	2	50	34			
	3	70	45			
10.	Number of living child					
	One	45	36	2	3.89	0.14 ^{NS}
	Two or above	23	21			
	None	83	42			
11.	Type of previous delivery					
	Normal delivery	23	21	3	8.61	0.35 ^{NS}
	Caesarean section	07	13			
	Normal delivery with episiotomy	36	22			
	None	85	43			

12.	Dietary pattern					
	Vegetarian	139	85	1	2.46	0.12 ^{NS}
	Non-vegetarian	12	14			
13.	source of information					
	Through health care worker	11	30	3	2.256	0.52 ^{NS}
	Through Neighborhood	03	06			
	Through T.V.	13	35			
	Through newspaper	01	11			

$p \leq 0.05$ * (*significant)

$p > 0.05$ (NS=Non Significant)

DISCUSSION

Anemia is common public health problem among the pregnant women increased the risk of mortality as well as morbidity. Present research study represents the prevalence of anemia and risk factors of anemia. Out of 250 pregnant women 56.7% of pregnant women were suffering from anemia whereas same result was shown in another research study of African countries.^[10,11] Similar study was conducted in one of the developed state of India that is Maharashtra where registered prevalence of anemia among antenatal women came out to be 56.4%.^[12] Similarly According to the WHO reports are showing 56% of all women residing in developing countries are anemic.^[13] In India national Family health survey-2 reported that 54% of women residing in rural area and 46% of women residing in urban area are anemic. In 1970, The National Nutritional anemia prophylaxis programme was started targeting for reducing the prevalence of anemia upto 25%.^[14]

Table 1, reveals that high occurrence of cases of anemia found in pregnant women who belong to age group 20-24 years, 55% of pregnant women having low education status were found to be anemic and 48% primigravida mothers have anemia. A similar study had been conducted on sociodemographic and maternal factors in anemia during pregnancy in Kerno, Northern Nigeria in 2009. The findings of the study revealed that age of the pregnant women ranged from 15-45 years, nearly 11.3% had no formal education.^[15] In the present study majority of pregnant women have poor knowledge 50% while 34% of pregnant mothers fall in average category regarding the prevention of anemia. Similar study was conducted by Venugopal BA, assessed the knowledge of pregnant mothers regarding prevention of anemia. The result shows that 38% had average knowledge and 8% had good knowledge about anemia during pregnancy.^[16] Results of another study shows that 59.9% of antenatal mothers had good practices anemia in pregnancy.^[17] Present study shows the significant association with religion, education status of mother and monthly income of family. Study conducted in Gondar Northwest Ethiopia and Addis Ababa shows that socio demographic factors are also responsible for the prevalence of anemia.^[18-21] Monthly income of family also have significant relation with the prevalence of anemia, which lead to inadequate diet and risk of anemia among pregnant women.^[21-22] Educational status of women is also affecting the knowledge and lead to the more risk of anemia in the pregnant women. Good

educational background have less risk of getting anemic by taking nutritional diet compared to illiterate women. This shows the significant association with the education status in regards to anemic mothers.^[23] The study is limited to small group of pregnant women. More sample of pregnant mother would help to determine the more generalize result.

CONCLUSION

Prevalence of anemia was 56.8% among the antenatal mothers. Anemia is one of public health problem in India, which is by far higher than the national prevalence, Religion, educational status of mother and income of family, were significantly associated with anemia. Higher prevalence of anemia indicate the failure of maternal and child health programme to address this problem. Regular supply of iron and folic acid tablets to adolescent and pregnant women can rectify the nutritional deficiency. Home based dietary management with food fortification and balanced diet can also overcome with the problem of anemia. Special emphasis by using primordial prevention about the counseling on consumption of iron supplementation as nutritional foods, birth spacing could help to prevent the anemia among pregnant women in hospital and community. Early detection and management strategy regarding anemia should be helpful to prevent the further complication.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

ACKNOWLEDGEMENT

Researcher would like to thank the all pregnant mothers who willingly contribute their time for this study.

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