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Original Research Article.

Prevalence of Anemia among Women in Reproductive Age Group of Rural Health And Training Centre Joharji of Maharishi Markandeshwar Medical College of Solan District of HP

Jai Gopal Vohra[1], Mukesh Sharma[2*], Anuj Sharma[3], Veenal Chadha[1], Gurmeet Singh[4], Param Pal Singh Coonar[5]

[1]Assistant Professor, [4]Professor, [5]Professor and Head, Department of Community Medicine, Maharishi Markandeshwar Medical College and Hospital, Kumarhati, Solan, Himachal Pradesh, India.
[2*]Professor and Head, Department of Community Medicine, Autonomous State Medical College, Firozabad, Uttar Pradesh, India.
[3]Associate Professor, Department of Pathology, Maharishi Markandeshwar Medical College and Hospital, Kumarhati, Solan, Himachal Pradesh, India.

ABSTRACT

Background: Anemia affects half a billion women of reproductive age worldwide. Various factors like poverty, lower literacy, poor living condition, cultural attributes, more frequent births, and lack of access to health care facilities make the women more prone to suffer from Anemia and morbidity in reproductive age group and the children below 5 years. Hence, the present study was conducted for assessing the prevalence of Anemia in the reproductive age group women in catchment areas of RHTC Joharji in hill region of Himachal Pradesh.

Materials and Methods: The present study was a descriptive epidemiological cross-sectional analytic field study conducted for assessing the prevalence of Anemia in the reproductive age group women in remote rural catchment areas of RHTC Joharji in hill region of Himachal Pradesh. Total 467 women of 15-44 years of age were taken as the study population from 5 Gram Panchyats and 15 villages in the area. A predesigned pretested semi structured questionnaire was used to collect the information from the respondents during house to house visit of investigators. A detailed history regarding age, socioeconomic status, occupation status, literacy status, smoking, alcohol intake, nutritive habits, reproductive profile, personal profile and health profiles was elicited. Data collected was entered in the Microsoft Excel sheet on daily basis and analyzed using statistical tests.

Results: Mild anemia was found to be present in 83.1 percent of the patients, while moderate Anemia was found to be present in 10.1 percent of the patients. Overall, anemia was found to be present in 93.2 percent of the patients. Obesity was found to be present in 10.2 percent of the patients.

Conclusions: Anemia of mild to moderate degree is most prevalent and warrants the use of Iron Folic acid tablets during pregnancy. In susceptible affected population we need to give the health and nutrition education through the multiple agencies and persons working in the field.

Keywords: Anemia, Reproductive Age, Nutritional Problem.

***Correspondence to:**

Dr. Mukesh Sharma,
Professor and Head,
Department of Community Medicine,
ASMC, Firozabad, Uttar Pradesh, India.

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INTRODUCTION

Globally prevalence of Anemia is major public health problem among the women of fertile age group. Anemia affects half a billion women of reproductive age worldwide. In 2011, 29% (496 million) of non-pregnant women and 38% (32.4 million) of pregnant women aged 15– 49 years were anaemic.[1] Nutritional Anemia is defined by WHO as "a condition in which the hemoglobin content of blood is lower than normal as a result of deficiency of one or more essential nutrients regardless of the cause of such deficiency".[2] Anemia is a syndrome caused by malnutrition in its widest sense. There is adverse effect on Cell-mediated Immunity, reduced resistance to infection, increased morbidity and mortality and diminished work performance.[3] A WHO Expert Group proposed that "Anemia should be considered to exist when Hemoglobin is below levels of <12g/dl in non-pregnant and <11g/dl in pregnant adult females."[4] As per report of National Family Health Survey 2015-2016, prevalence of Anemia in reproductive age group in rural areas of Himachal Pradesh was 50.5% in pregnant women and 53.4 % in non-pregnant women.[5]

A study conducted in rural area in Ambala district of Haryana in 2012 showed 96.8 % of women had Anemia (75.3% mild Anemia, 16.9% Moderate Anemia and 7.8% as Severe Anemia).[6] Globally, Anemia affects 1.62 billion people, which corresponds to 24.8% of the population.[7] In a study by Panigrahi and Pasun, the overall prevalence of Anemia among studied women was 60.8%, of which 39.6, 20.0 and 1.2% had mild, moderate and severe Anemia respectively.[8] WHO has estimated that prevalence of Anemia in pregnant women is 14% in developed and 51% in developing countries while it is 65-75% in India.[9] In a study conducted in 2017 in urban areas of Coimbatore district, out of 250 women, 89 (35.6%) had their normal hemoglobin level (>12.0g/dl), 6 (2.4%) had mild Anemia (11-11.9 g/dl), 145 (58%) had moderate Anemia (8-10.9 g/dl) and 10 (4%) had severe Anemia (<8.0 g/dl).[10] Several potential causes of Anemia have been identified in the Indian context, such as low iron intake, lower gastric acidity relative to populations of European descent. Among women, repeated childbearing, lactation and poor access to nutritional supplements following menarche and during pregnancy may cause or further exacerbate Anemia. Parasitic infections like hookworm and malaria, are also important causes of Anemia. Such factors highlight the various socio-cultural issues that influence Anemia status, including poverty, micronutrient deficiencies, cultural and religious practices, access to health services, and poor awareness of the condition and preventive measures.[11] The literature about Anemia in the reproductive age group women in the study area is very scanty so the present study was planned to assess the prevalence of Anemia in the reproductive age group women in rural catchment areas of RHTC Joharji an hilly region in Himachal Pradesh.

MATERIALS AND METHODS

The present study was a descriptive epidemiological cross-sectional analytic field study conducted for assessing the prevalence of Anemia in the reproductive age group women in remote rural catchment areas of RHTC Joharji in hill region of Himachal Pradesh. By using simple random sampling, five Gram Panchyats were selected which constitutes of fifteen villages. 467 women of 15-44 years of age were taken as the study population from 5 Gram Panchyats and 15 villages in the area.

While paying house to house visit investigators used a predesigned pretested semi structured questionnaire as a tool to collect the information from the respondents. After inclusion criteria were fulfilled, written informed consent was taken from all women before recruitment for this study. Hemoglobin assessment was done by Sahli's Haemoglobinometer in the field during the survey itself. Women in the age group of 15-45 years (fertile age group) who were permanent resident of the locality (Residing since last 6 months) and Subjects who were willing to participate in the study were included in the study. Temporary visitors/guests/ person residing in the area for less than 6 months, Persons not interested/willing to participate in the study, Person suffering from a severe ailment were excluded from the study. A detailed history regarding age, socioeconomic status, occupation status, literacy status, smoking, alcohol intake, nutritive habits, reproductive profile, personal profile and health profiles was elicited. The weight, height and abdominal girth for all the women of reproductive age group in the surveyed population were taken. Weight and height were taken with a standard procedure. Waist circumference was measured at the point halfway between the lower border of ribs and the iliac crest in a horizontal plane.[12] Women with BMI of 23.0-24.9 kg/m^2 were classified as overweight, while those with BMI ≥25 kg/m^2 were defined as obese.[13] Central obesity: Waist circumference ≥80 cm. The cases of Anemia were classified into 3 categories mild (Hb 10 to <12 g/dL of blood, moderate 7 to 9.9 g/dL of blood and severe < 7 g/dL of blood). Data collected was entered in the Microsoft Excel sheet on daily basis. Data analysis was done using SPSS Software (version 20.0) and appropriate test of significance was used to derive the results of the study.

RESULTS

In the present study, a total of 467 subjects were analyzed. More than 56% of population is in age group of 15 to 29 years and 65% is below 40 years.28.3 percent of the women belonged to the age group of 20 to 29 years. Mild Anemia was found to be present in 83.1 percent of the women, while moderate Anemia was found to be present in 10.1 percent of the study subjects. Overall, anemia was found to be present in 93.2 percent of the women. Obesity was found to be present in 10.2 percent of the subjects. While assessing the correlation of occurrence of Anemia with family size and occupation, non-significant results were obtained (p=0.127 and p=0.208 respectively). Significant results were obtained while assessing the correlation of occurrence of Anemia among subjects divided on the basis of obesity status (p=0.031).

Table 1: Age-wise distribution of subjects

Age group (years)	n	%
10-19	66	14.1
20-29	132	28.3
30-39	102	21.8
40 and above	167	35.8
Total	467	100.0

Table 2: Distribution of subjects according to Hb concentration

Hb levels (gm/dL)	n	%
Moderate 7-9.9	47	10.1
Mild 10-11.9	388	83.1
Normal 12 or above	32	6.9
Total	467	100

Table 3: Overall prevalence of Anemia

Prevalence of anemia	n	%
Moderate 7-9.9 gm/dL	47	10.1
Mild 10-11.9 gm/dL	388	83.1
Total	435	93.2

Table 4: Distribution of subjects according to BMI (According to WHO Classification of BMI)

BMI	n	%
18.5 or less(underweight)	49	10.5
18.6- 24.99(normal)	235	50.3
25-29.99(overweight)	135	28.9
30-34.99(obesity class 1)	38	8.1
35-39.99(obesity class 2)	8	1.7
40 or more (morbid obese)	2	0.4
Total	467	100.0

Table 5: Descriptive results of related parameters of Study population.

Value	Hb (gm %)	SBP	DBP	Repeat SBP	Repeat DBP	Random blood Glucose	Fasting blood Glucose if more than 126	Abdominal girth in cms
Mean	10.507	115.31	74.00	126.26	80.04	109.15	147.81	79.02
SD	0.7398	12.429	8.539	11.254	7.519	18.793	37.014	10.794

Table 6: Correlation of prevalence of Anemia among subjects divided on the basis of family size

Anemia	Family size			p- value
	1-4	5-8	9 or more	
Moderate 7-9.9	12	27	8	0.127
Mild 10-11.9	113	230	45	
Normal 12 or above	13	12	7	

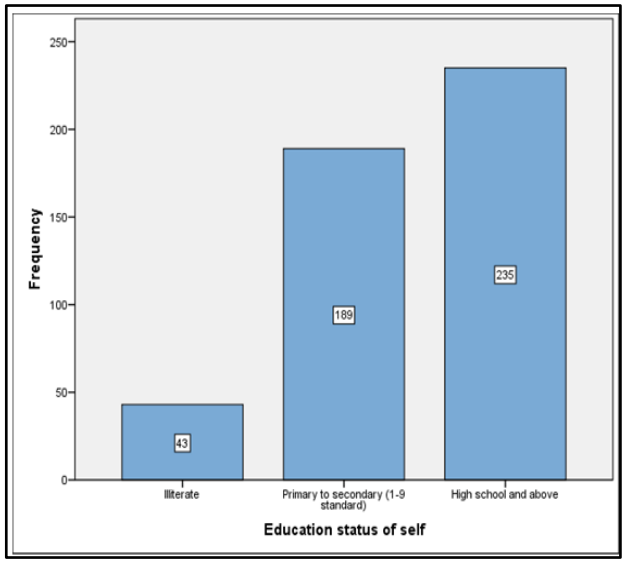
Table 7: Correlation of prevalence of Anemia among subjects divided on the basis of occupation

Anemia	Occupation			p- value
	Housewife	Student	Other	
Moderate 7-9.9	32	5	10	0.208
Mild 10-11.9	247	85	56	
Normal 12 or above	21	4	7	

Table 8: Correlation of prevalence of Anemia among subjects divided on the basis of obesity status

Anemia	Obesity status				p- value
	Underweight 63.9cm or less	Normal 64-79.9cm	Overweight 80-87.9cm	Obese 88cm and above	
Moderate 7-9.9	7	23	7	10	0.031*
Mild 10-11.9	23	183	103	78	
Normal 12 or above	1	9	13	9	

*: Significant



Graph 1: Distribution of women according to educational status

DISCUSSION

Nutritional anemia is the most common type of Anemia worldwide; this mainly includes iron, folate and vitamin B12 deficiencies. The most common cause of Anemia is the Iron deficiency (IDA). In beginning it may not manifest clear signs and symptoms. IDA is a common disorder among infants, preschool age children, young women and old people, but it can occur at all ages and in any region. A high demand for iron during pregnancy, lactation, menstrual blood loss and nutritional deficiencies are the most common causes of iron deficiency in reproductive age women. Although the diagnosis of IDA is relatively simple, it may go undiagnosed for a long time because of its nonspecific clinical signs.[10- 13]

In the present study, a total of 467 women were surveyed. More than 56% of population is in age group of 15 to 29 years and 65% is below 40 years. 28.3 percent of the women belonged to the age group of 20 to 29 years. Mild Anemia was found to be present in 83.1 percent of the study population, while moderate Anemia was found to be present in 10.1 percent of the women. Overall, Anemia was found to be present in 93.2 percent of the patients.

Chandrakumari AS et al.[13] assessed the prevalence of anemia among adolescent girls. Overall prevalence of anemia was found to be 48.63% (n = 124). The majority of the Anemic girls (55.64%, n = 69) were having mild degree of Anemia. Among 255 girls, 188 (73.73%) were from the early adolescent age group (10–14 years). Prevalence of Anemia (52.24%) was high among the late adolescents and those belonging to low socioeconomic class. There was a significant relationship between Anemia and socioeconomic status, dietary modification, nutritional supplementation, and helminth control; in addition, compliance with consumption of iron and folic acid tablets will prevent anemia to a great extent among adolescent girls.[13]

Obesity was found to be present in 10.2 percent of the patients. While assessing the correlation of occurrence of Anemia with family size and occupation, non-significant results were obtained. Significant results were obtained while assessing the correlation of occurrence of Anemia among subjects divided on the basis of obesity status.

Gautam S et al.[14] described the prevalence of anemia and the factors associated with the risk of developing Anemia in women of reproductive age. The mean (± SD) hemoglobin concentration was 12.13 g/dL. Overall, about 41% of women aged 15–49 years were anemic. While women who were currently using hormonal contraceptives were significantly less likely to be Anemic.[14]

Panyang R et al.[15] conducted a community-based cross-sectional study among 770 numbers of adult females belonging to the tea garden community. For all the samples, complete blood count, abnormal hemoglobin variants screening by high-performance liquid chromatography (HPLC), serum iron level, total iron binding capacity (TIBC), and serum ferritin concentrations were determined. Out of 770 patients, 19.7% were severely anemic. Hb S and β-thalassemia were the only hemoglobin types detected in the study.[15]

Rawat CM et al.[16] assessed the prevalence of Anemia among adolescent girls in rural area of India. The prevalence of Anemia in 504 adolescent girls (10-18 yrs) representing 24 subcentre villages of Daurala block of Meerut was 34.5%. The prevalence of mild, moderate and severe Anemia among adolescent girls was 19.0%, 14.0% and 1.4% respectively. Majority (55.2%) was having mild Anemia and only 4.0% had severe Anemia. Anemia was found to be significantly associated with educational status ($P < 0.05$), birth order ($P < 0.05$), awareness regarding Anemia ($P < 0.05$) and marital & obstetric status ($P < 0.05$) with no association with age, anthropometry and menarcheal age ($P > 0.05$).[16]

CONCLUSION

Our study concluded that anemia of mild to moderate degree was most prevalent and warrants the use of Iron Folic acid tablets during pregnancy and most susceptible population affected. We need to give the health and nutrition education to the subjects through the multiple agencies and persons working in the field.

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