

PREVALENCE OF ANEMIA AMONG REPRODUCTIVE AGE GROUP TRIBAL WOMEN IN UTTARAKHAND, INDIA

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ABSTRACT

Anemia is becoming a very common problem nowadays affecting all the ages and both the gender. The prevalence rates of anemia are higher in developing countries like India, especially affecting children, adolescents and women of reproductive age worldwide. About 50% of the adolescent girls and women from higher income educated families are anemic then what would be the condition of the women from poor income uneducated families? Thus, based on this, there is a need to study the prevalence of anemia particularly among females of tribal population in their reproductive age of 15-45 years. The status of anemia in the tribal women population of Hardwar district has yet not been well documented. The objective of the study was to estimate the prevalence of anemia among women of reproductive age tribal women in Laldhang area of Hardwar district, Uttarakhand. A cross-sectional study was conducted in five villages namely Nayagaon, Mohallapuri, Mitthiberi, Dhandiyawala and Rasoolpur of district Hardwar, Uttarakhand, in the month of January 2014. A total of 72 reproductive age (15-45years) tribal (Buxa) women were selected randomly. Sahli's haemoglobinometer method was used to examine the level of hemoglobin (Hgb). The prevalence rate of anemia was 64.28%. The majority of anemic women were in the category of moderate (58.33%) to mild (37.5%) and severe (4.16%). A significant ($F=7.26$, $P<0.01$) mean difference of hemoglobin level among mild, moderate and severe anemic group was found. This study validates the existence of moderate to mild anemia among reproductive age tribal women and underlines the need for iron supplementation to all reproductive women. Awareness and education about anemia can be provided in these types of affected areas.

Keywords: Anemia, Reproductive age women, Mild, Moderate, Severe.

INTRODUCTION

Anemia is becoming a major public health issue throughout the world, mostly iron deficiency anemia, particularly for women of reproductive age in developing countries. India continues to be one of the countries with very high prevalence of anemia and is a common cause of maternal morbidity and mortality and a key factor related to low birth weight. WHO has estimated that prevalence of anemia among pregnant women is 14% in developing countries and 65-75% specifically in India [1]. The important point to be notice is that about half of the global maternal deaths, due to anemia occurs in south Asian countries and among this India contributes to about 80% of the maternal deaths [2- 3]. Anemia is not a specific disease state but a sign of an underlying disorder.

It is so far is a most common hematology condition, in which hemoglobin concentration is lower than normal, reflects presence of fewer than normal RBCs with in circulation of oxygen delivered to body tissue [4-6]. Iron deficiency anemia is one of the commonest forms of anemia whose prevalence is high among reproductive age women. The main reason is excessive loss of iron or demand of iron associated with menstruation and child birth. It is critical health concern as it effect growth, energy level and also leads to various health problems. It is one of the main causes of morbidity, mortality in reproductive age and a key factor to low birth weight due to poverty, inadequate diet, pregnancy, lactation, poor educational level and poor access to health service women became an easy prey for anemia [7, 8].

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In spite of various programmes started by government of India, there is no significant decline in the prevalence of anemia. Still a large chunk of women falls into deadly jaws of anemia.

The iron deficiency anemia is further aggravated by poverty, illiteracy, ignorance and lack of knowledge. Most of the Indian women often take food left over by their husband. In most of the societies, men eat first and women last and poorly [9]. This is the culture in most of the communities. One such community is the Buksa tribe in Uttarakhand. The situation of tribal women is much worst. Women in these communities get married in very early age, soon after their marriage they give birth to children with very less gap. All the time they use to work in houses and fields as well. Sometimes they even don't have sufficient food to eat. They don't have any knowledge of anemia and its prevention. Above all most of the women did not have easy access to health facilities and they were ignorant about their health.

So, keeping in mind the above facts and background there is a need to conduct present study assessing the prevalence of anemia among the reproductive age group (15-45years) tribal (Buksa) women in Laldhang area of district Hardwar, Uttarakhand.

MATERIALS AND METHODS

A descriptive survey approach was used in present study to assess the prevalence of anemia among tribal rural women of Laldhang area district Hardwar, Uttarakhand. Five villages were selected based on the population of tribes viz. (i) Nayagaon (ii) Mohallapuri (iii) Mitthiberi (iv) Dhandiyawala (v) Rasoolpur. These five villages were having the maximum population of Buksa tribe in the area. Prominent tribal group of Uttarakhand is Buksa tribe, having 13.67% of the total population. They are spread over 173 villages of mainly Nainital and Dehradun district. However, the main concentration of the buksa tribe is found in Gadarpur, Ramnagar, Bajpur and Kashipur regions [10]. Some population is also residing in Laldhang and Gaidikhatta region of Hardwar district and a very less in Bhabar region of Kotdwar district PauriGarhwal of Uttarakhand.

This study is especially focused on the tribal (Buksa) women of reproductive age in Laldhang area of district Hardwar, Uttarakhand. The main objective of this study was to assess the prevalence of anemia among tribal women of reproductive age group (15-45yrs) in Laldhang

area.

SAMPLING

A total of 112 women of reproductive age group (15-45yr) were recruited through random sampling method among the selected five villages. The study was conducted during Jan 2014. All the reproductive age group women who were eligible and agree to participate have included in the study. Written informed consent was obtained from each subject for their participation after the nature of the study was fully explained to them in their languages. From all the participants, prior to enrolment, hemoglobin concentration was measured using Sahli's haemoglobinometer method. Hemoglobin testing is the primary method of anemia diagnosis based on concentration of hemoglobin in the blood; Anemia was defined as Hgb<11gm/dl in pregnant women and <12gm/dl for non-pregnant women, and then converted into the international cut off recommended by International Nutritional Anemia consultative Group (INACG), severe, moderate and mild as Hb<7gm/dl, 7-10 gm/dl and 10-11.9 gm/dl respectively [4,11-13]. Data was entered and compiled to avoid human errors.

STATISTICAL ANALYSIS

One way ANOVA have been used to find out whether mean difference of hemoglobin level among three anemic groups are significant.

RESULTS

Out of 112 respondents, 72 have been identified as anemic cases (64.28%) and only 40 were non-anemic i.e. 35.7%. Therefore the analysis was based on these figures. Number of females was highest in 15-20 year age group (26.38%) followed by age group 21-25 years (25%) (Table: 1 &2). Table 3 shows the distribution of anemia and its severity as determined by hemoglobin level. When the level of anemia is disaggregated by severity the majority of anemic cases were of moderate (58.33%) followed by mild (37.5%) and severe (4.16%). The mean difference of hemoglobin level among mild, moderate and severe anemic group was found to be significant ($F=7.26$, $df 2, 12$, $P<0.01$). When we see the association between grades of anemic with attributes, we find that the age category is not showing any significant association with the grades of anemia.

Table 1. Prevalence of anemia among all selected five villages of Laldhang area

| Selected Villages | Women's selected /village | Anemic women found /village | Prevalence % |
|-------------------|---------------------------|-----------------------------|--------------|
| Nayagaon | 25 | 18 | 72 |
| Mohallapuri | 25 | 15 | 60 |
| Mitthiberi | 12 | 08 | 66.6 |
| Dhandiyawala | 25 | 14 | 56 |
| Rasoolpur | 25 | 17 | 68 |
| Total | 112 | 72 | 64.52 |

Table 2. Prevalence of anemia according to age group among all selected five villages

| Villages/ Age group of women | Nayagaon | Mohallapuri | Mitthiberi | Dhandiyanwala | Rasoolpur | Total anemic women/age group | Prevalence rate (%) |
|------------------------------------|----------|-------------|------------|---------------|-----------|------------------------------------|------------------------|
| 15-20 | - | 08 | 03 | 02 | 06 | 19 | 26.39 |
| 21-25 | 05 | 02 | 02 | 04 | 05 | 18 | 25 |
| 26-30 | 05 | 02 | 02 | 01 | 01 | 11 | 15.27 |
| 31-35 | 05 | 02 | 01 | 05 | 03 | 16 | 22.22 |
| 36-40 | 01 | - | - | 02 | 01 | 04 | 6.95 |
| 41-45 | 02 | 01 | - | 01 | - | 04 | 4.17 |

Table 3. Village wise severity of anemia results are presented as numbers (percentage)

| Selected Villages | Mild anemic women/village | Moderate anemic women /village | Severe anemic women/village |
|---------------------------------|------------------------------|-----------------------------------|--------------------------------|
| Nayagaon | 09 | 08 | 01 |
| Mohallapuri | 07 | 06 | 02 |
| Mitthiberi | 04 | 04 | 00 |
| Dhandiyanwala | 03 | 12 | 00 |
| Rasoolpur | 04 | 12 | 00 |
| Total | 27* | 42* | 03* |
| Category/ severity Prevalence % | 37.5%* | 58.33%* | 4.16%* |

*significant at 0.01, p<0.01.

DISCUSSION

It was a community based study in which we included female patients of reproductive age group i.e., 15-45 yrs of age. In this study, results showed that 64.28% women were found to have anemia and majority of patients (88.8%) were aged between 15-35yrs. Only 11.1% women are of age 36-45yrs. This shows that the maximum of reproductive age group women between 15-35 yrs are under childbearing stage and they have given births which is a major sensitive time to cause anemia. As the number of females was highest in 15-20 years of age, this is because we can say that in the adolescence stage, iron need is increased due to rapid growth. In order to increase the absorption of iron, the level of ferritin decreases. Additionally, the onset of menstruation in girls results in reduced ferritin levels. Irregular eating habits and the lower consumption of animal sources foods contributes to the development of anemia. Therefore, females in this age group have higher incidence of anemia [14, 15].

In many studies it was found that anemia is a common problem in reproductive age group women because due to low income they are unable to take dietary food, lack of awareness is also a main cause of anemia. Iron deficiency is the most common cause of anemia worldwide. It frequently occurs due to inadequate iron intake, chronic blood loss or disease, mal absorption or a combination of these factors. Similarly data from NNMB [16] showed that iron and folic acid intake in the country in all the age group is very low. It effects one's development, growth and resistance to infections. Iron deficiency usually develops in a sequential manner over a period of negative iron imbalance, such as periods of blood loss and or

prolonged iron deficient diet, accelerated growth in children and adolescent as well as during pregnancy and lactation [17].

In India the prevalence of anemia is high because of (i) low dietary intake, poor iron (less than 20mg/day) and folic acid intake (less than 70µg/day) (ii) poor bioavailability of iron (3-4% only) in phytate and fiber rich Indian diet and (iii) chronic blood loss due to infection such as malaria and hookworm infestations [18-20].

Anemia gets provoked by increased requirements during adolescence and during pregnancy. Assuming that the absorption of iron is 8% in pregnant women, their average dietary intake will meet only 30-45% of the requirements. The low intake of iron folic acid and food stuffs that promote iron absorption, coupled with poor bioavailability of iron are the major factor responsible for very high prevalence of anemia in the country [11].

During the period of this study we came to know that women in this area have no knowledge of anemia. The pregnant women in the area were not taking any iron, folic acid supplements. They were not consulting to any doctor or the government hospital there, during their pregnancy. They were not taking any health service with an exception of one or two. The women in the families used to work from morning to evening and sometimes they even don't have sufficient food to eat. Women in the area got married in early age. Soon after their marriage they give birth to children within very less gap. So, in totality we can conclude that, lack of awareness, education, health service, low income and poor socio-economic conditions are some

factors which are influencing the prevalence of anemia in this study.

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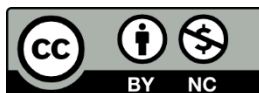
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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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