

Research article

Prevalence of Anemia among Women: A Hospital-Based Study in Eastern Nepal

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ABSTRACT

Background and Objectives: Prevalence of anemia is a common health problem among the women particularly in developing countries. The purpose of our study is to determine the prevalence of anemia among women in eastern Nepal. The study is planned to find out the prevalence of anemia among the women in eastern Nepal.

Material and Methods: Retrospective study was conducted among the women in between group of age 20->70 years during Dec 2015 to Aug.2016. Anemia was classified as per the WHO guideline i.e. Mild, moderate and severe.

Results: Out of 877 women included in the study, 512 (58.4%) women were diagnosed anemic. The highest prevalence of anemia 61.5% & 60.6% were found at the age group of 50-59 and 20-29 yrs respectively among the anemic patients. Mean and SD (Std. deviation) of hemoglobin and age was 10.21 ± 1.45 gm/dl and 35.59 ± 14.14 yrs of the anemic populations respectively.

Conclusion: It is concluded that the anemia still constitutes a health problem among women with the present prevalence 74.2% in Dalit caste in eastern Nepal. Further research is recommended to identify the specific risk factors of anemia in women.

Key words: Anemia, Dalit, Prevalence, Nepal

INTRODUCTION

Anemia is a common and public health problem around the world. Approx 30% of the world's population are affected by anemia [1]. It has been reported that 56% and 18% of pregnant women are anemic in developing and developed countries respectively [2]. World Health Organization reported that due to iron deficiency 52% of the pregnant women and around 35-40% of women are anemic in developing countries

[2]. In developing countries, Iron deficiencies (ID) are one of the leading nutritional deficiencies in the world [3-4]. There are several studies showing prevalence of anemia among pregnant women in Nepal. The prevalence of anemia was 62.2% out of which 3.6% with severe anemia, Kathmandu, Nepal, 2000 [5]. In the year 1988 the prevalence of anemia was 50-60% in Nepal [6]. Other studies done in eastern part of Nepal showed the prevalence was 68.8% in adolescent girls in Dharan and 47.2% in

Biratnagar, two cities in eastern region of Nepal [7-8].

Despite the existing prevention and control of anemia such as iron and folic acid supplementation and free supply of iron preparation, reports from multiple large national surveys indicate that there has been no significant decline in the prevalence of anemia or adverse consequences attributed to it [9-13]. Often programs and projects aiming to prevent and control anemia are constrained by the erroneous data regarding causative factors responsible of the target group.

Anemia has been known to be responsible for fetal complications. Apart from decreasing the women's reserve to tolerate bleeding either during or after child birth, It has been associated with low birth weight, premature delivery, intra uterine growth retardation etc and thus increased parental mortality [14-17]. In south Asian countries, out of which India contributes to 80% [18] global maternal deaths occurred due to anemia. Education also having role for nutritional consumption plays a major role in determining human health, which is reflected in the prevalence of anemia. Those Women, engaged in agricultural work, are the most affected group. This could be infested with hookworms and other kinds of worms and parasites. There is difficult to determine the causes for anemia without further investigation. This study aims to report prevalence of anemia in eastern part of Nepal based on hospital data.

MATERIAL AND METHODS

This is hospital based retrospective study carried out on Women of age from 20-70 years and above at Birat Nursing home, a unit

of Birat Medical College & teaching hospital, Biratnagar, Nepal from December 2015 to August 2016. A total of 877 outdoor and indoor patients who visited Birat Nursing home during the study period for their medical check-up and hemoglobin estimated were included in this study. Incomplete information and Women who were pregnant at the time of survey are excluded from the study. Assessment of hemoglobin concentration was carried out by the Cyanmethemoglobin method [19]. Age, caste and hemoglobin levels of study patient's were collected from the hospital records and analyzed for anemia.

According to the WHO classification of anemia [2], Mild anemia was defined as hemoglobin concentration lay between 10.0-11.9 gm/dl, moderate anemia was defined as hemoglobin concentration lay between 7.0-9.9 gm/dl and severe anemia was defined as hemoglobin concentration < 7.0 gm/dl. SPSS-17 was used for data analysis. Data were analyzed and Mean, SD (Std. deviation) and percentage were calculated.

RESULTS

Overall prevalence of anemia among women of different caste and age from 20-70 years and above was 58.4% (512/877) which is regarded as prevalence of anemia in women of eastern Nepal from this study. The highest prevalence of anemia was present at the age group of 50-59 years and the minimum was in the age group of >70 years and above. Further it was revealed that 61.5% and 60.6% are more effective age group 50-59 and 20-29 years respectively. Among the study population women (N=877), 41.6% (365/877) found normal and 58.4% of varying degree of anemia. The classification 341(38.9%) had mild anemia, 150 (17.1%)

Table 1: Severity of anemia in different age groups

Age/ Years	Severe	Moderate	Mild	Anemic	Normal	Total
20-29	12 (3.4%)	68(19.0%)	137 (38.35)	217(60.6%)	141 (39.4%)	358 (100.0%)
30-39	3 (1.5%)	31 (15.7%)	82 (41.6%)	116(58.9%)	81 (41.1%)	197 (100.0%)
40-49	3 (1.8%)	26 (16.0%)	60 (36.8%)	89(54.6%)	74 (45.4%)	163 (100.0%)
50-59	1 (1.5%)	12 (18.5%)	27 (41.5%)	40(61.5%)	25 (38.5%)	65 (100.0%)
60-69	1 (1.6%)	8 (12.5%)	27 (42.2%)	36(56.2%)	28 (43.8%)	64 (100.0%)
≥70	1 (3.3%)	5 (16.7%)	8 (26.7%)	14(46.7%)	16 (53.3%)	30 (100.0%)
Total	21 (2.4%)	150 (17.1%)	341 (38.9%)	512(58.4%)	365 (41.6%)	877 (100.0%)

for moderate and 21(2.4%) were severely anemic.

23.32±2.30 between the age group of 20-29 years respectively.

Table 2: Mean and SD of Hb and age in different age groups

Age/ Years	Hb (mg/dl)	Age (Years)
	Mean ±SD	Mean ±SD
20-29	11.32±1.97	23.32±2.30
30-39	11.54±1.81	33.32±3.03
40-49	11.5±1.81	43.47±2.67
50-59	11.17±1.98	53.92 ±3.14
60-69	11.69±2.03	63.03 ±2.86
≥70	11.88	74.00
Anemic (N=512)	10.21±1.45	35.59±14.14
Non Anemic (N=365)	13.14±0.98	37.08±15.06
Total Population (N=877)	11.43±1.92	36.21±14.54

Hb, Haemoglobin; mg/dl, milligram per decilitre

Table 3: Status of anemia by Caste

Caste	Anemic (%)	Non- Anemic (%)	Total (%)
Brahmin	136(48.2)	143(51.8)	279
Chhetri	109(57.3)	81(42.7)	190
Janjati	73(57.0)	55(43.0)	128
Dalit	121(74.2)	42(25.8)	163
Others	73(62.4)	44(37.6)	117
Total	512(58.4)	365(41.6)	877 (100)

Mean and SD (Std. deviation) of hemoglobin and age of total study population were 11.43±1.92 and 36.21±14.54 while anemic population 10.21±1.45 and 35.59±14.14 respectively. Mean and SD (Std. deviation) of hemoglobin and age of the highest prevalence of anemia were 11.17±1.98, 53.92±3.14 between the age group of 50-59 years and the second highest 11.32±1.97,

DISCUSSION

Anemia has major consequences on human health as well as social and economic development. In the present study, it was found that over all prevalence out of 877 women 20->70 years age group 512 (58.4%) were suffering from varying degrees of anemia and that 365 (41.6%) were non-anemic. This indicated that it was a public health problem in eastern Nepal of high magnitude as per the WHO guidelines [2]. Study has revealed that the problem of anemia is still continuing among the women of eastern Nepal due to two main reasons that is socioeconomic status and lack of awareness about nutrition, many women suffer from anemia. Others studies conducted in India and developing countries and found a high prevalence of anemia in women in reproductive age group i.e. between 35-88% [7, 20-22]. Thus, the results of other studies which have been mentioned above demonstrated that the prevalence in this study was high in other parts of the country.

In our study, the prevalence of severe anemia was 2.4%, moderate 17.1% and the mild anemia was 38.9%. Study carried out in India and recorded that 44.38% women were mildly anemic, 17.1% were moderately

anemic while 2.4% were severely anemic [23].

It was hospital based study in which we included women of different caste. Association of anemia in relation to different caste the highest prevalence was observed in Dalit (74.4%) followed by other caste (62.4%), Chhetri (57.3%) and Janjati (57%). There was significant difference in anemia by caste since p value was <0.05.

If the prevalence of anemia at community level is more than 40%, then it is considered as a problem of high magnitude [2]. The prevalence of various parasitic infestations and other chronic illnesses were not studied in this study, so it is difficult to comment on the causes of high prevalence among schedule caste women. The study in adolescent seen in Nepal, the prevalence of anemia of both sexes i.e. males and females was found 47.7% and 52.3% respectively [24]. Our study further revealed that anemia was mostly recorded at the age group of 50-59 and 20-29 yrs. There are many causes of anemia but Iron deficiency (ID) is the predominant nutritional deficiency and is present even when other causes of anemia are recognized.

CONCLUSION

Anemia is the common public health disease affecting women in eastern Nepal. There is a significantly high prevalence of anemia in Dalit women in eastern Nepal. Our study has not focused the target group of demographic factors to high prevalence of the disease. Programs focused on target population need to be planned and implemented with active participation of locals. It is concluded that the anemia still constitutes a health problem among women with the present prevalence 74.2% in Dalit caste. Further research is

recommended to identify the specific risk factors of anemia in women.

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