Original Research Paper

Community Medicine

PREVALENCE OF ANEMIA IN SCHOOL GOING ADOLESCENTS IN KHALTSI BLOCK OF LEH DISTRICT.

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ABSTRACT Anemia is one of the most common but preventable problems globally. Despite of National programmes launched to prevent anemia among adolescent, the outcome was very discouraging.No such study has been done in Ladakh till date, as here in Ladakh the road connectivity with rest of India remain cut off for four to six month during winter and lacks plenty of fresh vegetable and fruits.

Results: Total number of adolescents participated in the study was 255. 116 were males and 139 were females. Overall prevalence of anemia was 58.04%. Anemia was more common among girls. Majority of students father's by occupation were agriculture. Yearly de- worming is done only in 9% of adolescents. Prevalence of anemia was more among those who are on vegetarian diet. Majority of adolescents residing in hostel were anemic.

KEYWORDS : Anemia, Adolescent, Prevalence, Ladakh.

INTRODUCTION : Adolescence is defined by World Health Organization (WHO) as the period of life spanning the ages between 10 and 19 years during which both physical and psychological changes occur. Globally adolescent constitute 18 per cent of the world's population (i.e. 1.2 billion). More than half of all adolescents live in Asia. India is a home of 243 million adolescents and they are the future generation of any country and their nutritional needs are critical for the well being of society (1)

WHO estimated that 50% of all anemias' are due to iron deficiency (2). Adolescent are at high risk of iron deficiency anemia due to increase iron requirement, poor intake, early marriage and adolescent pregnancies (3).

Among school going adolescent anemia impairs cognitive and behavioral development resulting in decreased school performance and at same time immune system is also impaired (4).

In developing countries other common cause for anemia is parasitic infections and infectious diseases, during which requirement of iron increases (5).

India is a home to nearly 113 million adolescent girls—the prevalence of anemia in adolescent girls is estimated at 56%.(6)

National programmes were launched to prevent anemia among pregnant women, but despite that, the outcome was very discouraging. Some modification of programme has been done to make it more effective and efficient but problems still remains.

Rational behind the study is that no such study has been done in Ladakh till date, as here in Ladakh the road connectivity with rest of India remain cut off for four to six month during winter and lacks plenty of fresh vegetable and fruits.

AIMS AND OBJECTIVE: To determine the prevalence of anemia in school going adolescents of Khaltsi block.

MATERIAL AND METHODS:
Khaltsi is one of the rural block of Leh district, of Jammu and Kashmir, about 100 kms away from Leh town and is situated at altitude of 2987m(9800ft) above sea level.

It was a cross sectional study carried out among school going adolescents both boys and girls of Khaltsi block. Complete lists of all government/ private schools having class 6th to 12th were obtained from office of Block Education Officer, Khaltsi. So, total numbers of

school were 111 and 50% of schools were selected randomly. Students within the class were selected through systematic random sampling in schools having enough number of students and those schools where number of students was less all students were allowed to participate in the study. Every school was visited with prior permission from school principal and class wise list of adolescents were obtained from class teachers. Verbal consent was taken from each adolescent before interview and drawing blood sample. A predesigned semi structured questionnaire was used to collect data by investigator regarding age, father's occupation, details of menstruation, diet etc, and followed by clinical examination. Hemoglobin test was done using Sahli haemometer. Anemia was classified as normal, mild, moderate and severe based on WHO recommended cut off (7). Body mass index (BMI) of each adolescent was also recorded using stadiometer with weighing scale. Malnutrition was classified according to WHO as follows: Body mass index BMI in kilograms/metre^2:

RESULTS AND DISCUSSION: The total sample size of the study was 255 adolescents, out of which 116 (45.5%) were males and 139 (54.5%) were females. Girls' strength was more compared to boys. Mean age was 15.77 with SD of -2.5. Mean hemoglobin was 11.23 with SD of -9.8.The study found that majority of subjects belongs to age group 17-18(28%), followed by age group of 15-16 years(26%) and lowest among 11-12 years(11%).

Table 1: Overall prevalence of anemia

	BOYS	GIRLS	TOTAL
ANEMIA < 12GM%	**58(50.43%)**	**90(64.28%)**	**148(58.04%)**
NON-ANEMIA > 12GM%	57(49.56%)	51(35.71%)	108(41.96%)
TOTAL	115	140	255 (100%)

Overall prevalence of anemia <12gm% was 58.04 %. Prevalence of anemia in girls was 64.28% and 50.43 in boys.

Table 2. Prevalence of severity of anemia.

SEVERITY OF ANEMIA		BOYS	GIRLS	TOTAL
SEVERE ANEMIA	< 7	0 (0%)	4(1.56%)	4 (1.56%)
MODREATE ANEMIA	8 -- 10	17(14.8%)	38(27%)	55(21.6%)
MILD ANEMIA	11 -- 12	55(47.8%)	77(55%)	132 (51.8%)
NO ANEMIA	>12	43(37.4%)	21(15%)	64 (25%)
TOTAL		115 (45%)	140(55%)	255(100%)

So, as per grading of anemia, prevalence of severe anemia was 1.56% and was only among girls and 0% among males. Moderate anemia was more among girls (27%) as compared to boys (14.8%). Likewise mild

anemia was found to be 55% among girls and 47.8% among boys. So all types of anemia was seen among girls.

Among anemic adolescents, prevalence of mild anemia was 89.9%, moderate anemia was 37.4% and severe anemia was 2.72%.

TABLE 3: Percentage of adolescents with past history of surgery, yearly de-worming and frequent intake of green vegetables.

	Yes	No	Sometime	Total
Past history of major surgery	22(8.6%)	233(91.4%)	--	255(100%)
Frequent intake of green vegetables	33(13%)	2(.8%)	220(86.3%)	255(100%)
Yearly deworming	23(9%)	232(91%)	--	255(100%)
Hosteller	64(25%)	191(75%)	--	255(100%)

8.6% of adolescent's gives history of surgery in past, 13% takes green leafy vegetables quite frequently and majority are taking less frequent. Yearly de-worming is done only in 9% of adolescents and it seems that programmes for anemia control are not going well in this areas. The study shows that 50.58% of adolescents were having normal weight and 43.31% were underweight and only 5% are overweight. None of students were obese.

Regarding age at menarche among girls, majority girls starts menarche at the age of 12 years (n=42). Pattern of period was regular in 106 girls and irregular in 14 girls. Majority of girls had menstrual duration ranging from 3-5 days Prevalence of anemia was more (52.7%) among adolescents with BMI <18.49 as compare to those with normal BMI. Among boys anemia was more among underweight boys than those having normal weight. But in contrast to this, anemia was more among girls with normal weight.

Prevalence of anemia among adolescent was more who are on vegetarian diet(63.2%) compared to those on non vegetarian diet(55.6%). 69.2% of anemic adolescent do yearly de-worming as compare to 57% of anemic adolescent do not do yearly de-worming. 52.6% of anemic adolescents give past history of surgery compared to 47.4% of non anemic adolescents. Majority of adolescents residing in hostel were anemic (60.3%) as compare to those residing at their home.

DISCUSSION

Many studies has been done in many states of India, no such study has been done in Leh, as Leh being a cold desert remain cut off from rest of countries and no fresh vegetables and fruits are available in abundant.

Total adolescents participate in the study was 255 in numbers, out of which 116 were boys and 139 were girls. Strength of girls were more than boys, it is a positive findings that in Leh more girls are going to school.

Overall prevalence of anemia came out to be 58.04%. But among boys it was 50.43% and among girls prevalence of anemia was 64.28%. So prevalence of anemia was more in girls. It has been found that in all types of anemia prevalence was more among girls compared to boys.

A study done in lower income families in Vadodara found that 67% of girls were anemic(8). A study conducted by Sing also found that 53.6% of adolescents girls were anemic(9). Other studies done by Rama et al (10) 60% and Seshadri et al (63%) (11), also found that prevalence prevalence of anemia comparable to this studies.

As per grading of anemia prevalence of severe, moderate and mild anemia was 1.56%, 21.6% and 51.8%. It has been found that in all types of anemia prevalence was more among girls compared to boys. Study done by Damaris Nelima(12) found that percentage of severe anemia was 1.7% which was comparable with our study.

Majority of students father were agriculturer followed by government employees and others.

It has been found that prevalence of de-worming in schools were done only in 9% and adolescents and it seems that programme for anemia like WIFS are not implemented properly in these areas.

Prevalence of anemia was more among adolescent with BMI less than 18.49 i.e under weight adolescents. Study done by Premlatha also found that prevalence of anemia was more among underweight

adolescents. Anemia was more common among adolescents on vegetarian diet and result was same in study done by Premlatha. 52.6% of anemic adolescents gave past history of surgery and majority of anemic residing in hostels were anemic. It has been found that National Health Programmes are not functioning properly on ground level. Emphasis must be given to administrators about the importance of National Programmes in combating the anemia among the adolescents.

SUMMARY:
- Overall prevalence of anemia was 58.04%. Anemia was more common among girls.
- Majority of students father's by occupation were agriculture.
- Yearly de- worming is done only in 9% of adolescents.
- Prevalence of anemia was more among those who are on vegetarian diet.
- Majority of adolescents residing in hostel were anemia.

Limitation of study: As the study was done in one block of Led district. So it cannot be generalized.

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