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STUDY OF PREVALENCE OF ANAEMIA IN SCHOOL CHILDREN OF ARMY PERSONAL AT CANTONMENT AREA, JAIPUR.

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Abstract

Background: Anaemia is one of the most common hematological diseases of the pediatric age group. In developing countries prevalence of anaemia is much higher in children. The present study was done at Jaipur to identify prevalence of anemia in children.

Methodology: This is a prospective study conducted in school children from June 2018 to June 2019 and includes 500 children residing in cantonment area at jaipur.

Results: Prevalence of anaemia was more among females and vegetarians.

Conclusion: Anaemia is still a major health problem in our country. Childhood anaemia still continues to be a major public health problem in school children between 6-12 years

Keywords: Anaemia, socioeconomic status, Iron Fortification.

1. INTRODUCTION

Anaemia is most common hematological disease of the pediatric age group. Highest prevalence of anaemia is seen in developing countries. Anaemia is widely prevalent in India and affects both sexes and all age groups.(1)

Global anemia prevalence when examined for each physiological group using the WHO global data on anaemia tells that most affected groups are pregnant women (69%) and school age children (33%).(2)

In Asia the prevalence of nutritional anemia is much high in countries like Bangladesh (74-80%), Indonesia (37-73%), and India (34-69%). (3)Since several decades, it has been known to be important problem in most tropical countries.

WHO global data show, that anaemia due to iron deficiency affects approximately 30% of World's population and about 37% of school children. (4)In Indian children, high prevalence of anaemia varying from 27% to 90% has been reported in different studies.(5)The population differences in the prevalence of anaemia are explained by environmental factors affecting nutrition, chief among these are economic status, ethnic customs and geographic considerations.(6)

Due to high prevalence and severe consequences of anaemia which are long lasting and possibly irreversible in children it has led various international organizations like WHO, UNICEF, NFHS, Govt. of India and other NGO's agencies to reduce the prevalence of anaemia and related burden of disease as major goal. Several strategies were implemented to achieve this goal including iron fortification, use of iron supplements, deworming for school children, Mid day meal programme and education regarding nutrition, but the goal still needs to be achieved.(7)

2. MATERIAL AND METHOD

This was a prospective study conducted in children of army personal at cantonment area, Jaipur from June 2018 to June 2019.

Source of Data

School going children in the age group of 6-12 years both Government and Private schools were selected. Preliminary visits were made to their homes and schools. Only those children whose parents consented were included in the study.

Inclusion Criteria

School children in the age group of 6-12 years both boys as well as girls.

Exclusion criteria

Children age less than 6 years and more than 12 years are excluded from the study.

Children suffering from any illness are not taken into the study.

Exclusion criteria were based on the relevant information from the parents / guardians and with complete physical examination.

Method of Collection of Data

About 500 children were included in the study after obtaining consent from parent and school teachers. A preplanned questionnaire was used to collect the health details of the children and socioeconomic status of the family and dietary habits of the children. Venous blood sample was collected of all children under strict aseptic precautions in EDTA anticoagulant for hematological investigations. Hemoglobin (Hb) estimation was done using cyanmethemoglobin method 20micro liter of anticoagulated blood was added to 5ml of freshly made standardized Drabkin's solution in a vial. This was inverted several times to mix the solution. It was allowed to stand for 10min and the solution was read in spectro-photometer at 540nm and grading of Anemia was done by hemoglobin levels according to recent WHO guidelines. Peripheral blood smear study was performed on all the children. Peripheral smear was stained by Leishman's stain. Staining characteristics and morphological abnormalities of red cells were observed. According to latest WHO guidelines anemia was taken HB < 11.5gm/dl. And mild anemia HB 11 – 11.4gm/dl, moderate 8 – 10.9gm/ dl and severe HB < 8gm/dl.

STATISTICAL ANALYSIS

The data obtained was reanalyzed using Windostat 9.2 version. By using this Chi square and ANOVA tests were done.

3. RESULTS

A total of 500 cases were studied of which 55 % were male and 45 %were female. The age proof of all children was obtained from the parents and school. Consent was taken from parents.

Table no. 1 shows that out of 500 children, 230 (46.0%) were not having anaemia and 270 (54.0%) were anaemic. Hb value <11.5 g/dl. Out of 270, 100 (20.0%) students were having mild anaemia, 160 (32.0%) were having moderate anaemia and 10 (2.0%) were having severe anaemia.

Table -2 shows the association between prevalence of anaemia in socioeconomic status and sex and it was found to be statistically insignificant. The prevalence of anaemia in children belonging to class III as per modified Kuppaswamy's classification was less than children belonging to class IV and class V. The socioeconomic status plays a major role in prevalence of anaemia. In class III socioeconomic status 70.58 % of female children had anaemia, 35.20 % of males were.61.87% of female children had anaemia compared to 48.3% of males belonging to class IV socioeconomic status.62.5% of female children had anaemia compared to 41.17% of males belonging to Class V socioeconomic status. Female children had higher prevalence of anaemia in all socioeconomic classes

Table 1: Prevalence of anaemia according to grading of anaemia in children between 6 to 12 years

Grade	Total
Normal (>11.5gms/dl)	230 (46.0%)
Mild (11-11.4gms/dl)	100 (20.0%)
Moderate (8-10.9gms/dl)	160 (32.0%)
Severe (<8gms/dl)	10 (2.0%)

Table 2: Prevalence of anaemia cases according to SES and sex

SES	MALE			FEMALE			PREVALENCE
	Normal	Anaemia	Total	Normal	Anaemia	Total	
Class	11	06(35.2)	17(100)	05	12(70.58)	17(100)	52.94
Class	107	100(48.30)	207(100)	61	99(61.87)	160(100)	54.22
Class	30	21(41.17)	51(100)	18	30(62.5)	48(100)	51.51
Total	148	127(46.18)	275(100)	84	141(62.66)	225(100)	53.60

4. DISCUSSION

The present study was undertaken to know the prevalence of anemia in school going children and to know the influence of various factors like sex and Socioeconomic status in case of anemia in children of army personal at cantonment area Jaipur. This is a prospective study conducted from June 2018 to June 2019.Total of 500 children were studied.

The prevalence of Anemia in this study is almost similar to Verma et al (8) study. The prevalence of anemia is more in females compared to males. Anemia is more prevalent in vegetarian group of children compared to non-vegetarian group of children. Prevalence of anemia decreases with improvement in socioeconomic status. The children included in our study were belonging to class III, Class IV and Class V only. In this study prevalence of anemia is more in class IV, must be because of more number of children in that group.

A study done at Tamilnadu by Sundareshan et al (9) included the age group of children with 8-16 years compared to 6-12 years in our study. The Prevalence of anemia is nearly equal in both studies.

According to WHO study prevalence of anemia in school children was 33%.prevalence of anemia in our study is more than the prevalence of anemia by WHO worldwide study in school children. (11)

It is evident from study that a major proportion of apparently healthy children suffer from anemia. That may be due to faulty habits of consumption of poor quality diet and rising trend of consuming snack and junk food. Which have lack of iron and other micronutrients. Prevalence of anemia is significantly higher in females when compared to males, similar to other studies. This may be due to customs and believes in the families to provide nutritious food to boys than girls. And may be due to hormonal changes which occur at the time of onset of menarche and loss of menstrual blood in girls who already attained menarche.

5. CONCLUSIONS

Anaemia is a major health problem in our country. Childhood anaemia is also a significant public health problem in school children between 6-12 years. The prevalence of anaemia in children belonging to lower socio economic status is more than higher socioeconomic status. Female children had higher prevalence of anaemia in all socioeconomic classes.

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