Original Research Article

Prevalence of Anemia in Rural Government School Going Children (10-16yrs)

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Abstract

Introduction: Anemia is common problem of school going children's. Most common in developing countries like India, anemia defined as a reduction in the oxygen carrying capacity of blood either due to reduction in red blood cell volume or hemoglobin concentration with respect to age and sex. The purpose of the study is to assess the prevalence of Anemia among Government school going children. **Materials and Methods:** It was a cross sectional study conducted from January 2019 to March 2019, aged 10-16 years at Government schools of mambaram, Kannur. Pre prepared questioner used to collect data. **Results:** Results of the study revealed that overall prevalence of anemia in 10-16 year age children was 42%, in that 64.3% are in girls and 35.7% in boys. inanemic children's 66.6% as moderate anemia and 7.1% as severe anemia.all severe anemic children's are girls, 42.8% of girls and 23.8% of boys are in moderate. **Conclusion:** The prevalence of anemia is very high in school going children's; girls are more vulnerable for anemia need separate attention in nutrition, lifestyle and menstrual cycle. Need effective implementation of national programs in these groups. Parents as to be separately educated in anemia and its prevention.

Keywords: Anemia, School Children, Prevalence, Iron Deficiency Anemia, Hemoglobin.

Introduction

Anemia is an common public health problem in developing countries. It is the world's second leading cause of disability of the whole global disease burden[1-3].Anemia is dangerous to school going children due to increased requirement of nutrients during their growth stage which lead to compromise in physical, educational and mental performance[4]. Most common factor for anemia is nutritional deficiency; iron deficiency is one among leading cause. Need for its requirement increases up to 2.4 mg/day[5].Anemia is one of the most prevalent diseases in the world today[6].Anemia defined as a reduction in the oxygen carrying capacity of blood either due to reduction in red blood cell volume or hemoglobin concentration with respect to age and sex. WHO also defines it as a condition in which hemoglobin (Hb) content of blood is lower than normal (<11 g/dL)[7].

Anemia Grading by ICMR

Mild Anemia: 10-10.9g/dL,Moderate Anemia: 7.1-10 g/dL,Severe Anemia: less than 7 g/dL.

This paper describes the prevalence and severity of anemia in school-going children in the government school in rural area. The results from the study could add on evidences to the epidemiology of anemia in the south India and also helps in the future planning and programs of government.

Materials and Methods

This is a cross-sectional study conducted among 100 school going children (10-16years) in Government School, mambaram, Kerala.

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After getting approval from the ethics committee, Kannur medical college. Consent was obtained from the principal of the school. A preformed questionnaire was given to school children and asked to fill up the form. Blood samples were collected for estimating haemoglobin level.

Inclusion Criteria

- Age (10-16) years
- Government school children

Exclusion Criteria

- Refuse to give informed consent.
- Those suffering from congenital anomalies and chronic diseases.
- Outside age group 10-16yrs.

Statistical Analysis

Statistical analysis was carried out by Chi-square test and Z test. A p-value <0.05 is statistically significant. P value was determined by using the primer of biostatistics of the SPSS software volume 22.

Results

Out of 100 school going children's in age between 10-16yrs. In our study equal numbers of students are taken from each class of they studying, distributing almost equal numbers in age groups, 42.8% of students are anemic in 13-14yrs age group and 8th, 9th and 10th classes' students as same anemic students. 52.3% of children's from nuclear family and 59.5% in underweight are anemic.

Prevalence of anemia is 42%.in our studying school, in that 27(64.2%) are Girls and 15(35.7%) are boys. 26.1% of study school children are in mild anemia,66.6% as moderate anemia and 7.1% as severe anemia, all severe anemic children's are girls , 42.8% of girls and 23.8% of boys are in moderate .

Table 1: Comparison of socio – demographic factors associated with anemia

Factors	Number(N=100)	Anemia(N =42) (42%)	No anemia(N=58) (58%)	Chi –square (χ^2)	'P' value
Age				0.0275	0.79
10 – 12yrs	32(32%)	12 (28.5%)	20(34.4%)		
13 – 14yrs	38(38%)	18(42.8%)	20(34.4%)		
14 – 16yrs	30 (30%)	12 (28.5%)	18(31.0%)		
Education				4.0552	0.689
6std	20	7(16.6%)	13 (22.4%)		
7std	20	5 (11.5%)	15 (25.8%)		
8std	20	9(21.4%)	11 (18.9%)		
9std	20	10(23.8%)	10 (17.2%)		
10std	20	11(26.1%)	9 (15.5%)		
Type of family				23.273	< 0.00001
Nuclear	58(58%)	22(52.3%)	36 (62.0%)		
Joint	27(27%)	11 (26.1%)	16 (27.5%)		
Extended joint	15(15%)	9 (21.4%)	6 (10.3%)		
BMI					
Underweight	41(41%)	25(59.5%)	16(27.5%)		0.003
Normal	25(25%)	8(19.0%)	17(29.3%)		0.330
Overweight	34(34%)	9(21.4%)	25(43.1%)		0.212

Table 2: Prevalence of anemia

Parameters	Number of cases	Percentage
Mild anemia	11	26.1%
Moderate anemia	28	66.6%
Severe anemia	3	07.1%

Table 3: Distribution of students according to gender

Parameters	Number	Anemia
Male	43	15(35.7%)
Female	57	27(64.3%)

Table 4: Degree of anaemia levels according to gender

Parameters	Mild anemia	Moderate anemia	Severe anemia
Male	5	10	0
Female	6	18	3

Discussion

Anemia is an common nutritional problem seen in the school going children's of developing countries like India, Several studies across India reported a wide range of prevalence of anemia between 25 and 95% among adolescents[8-13]. Our study children's are in 10 – 16 year age group children as prevalence of anemia was 42%. A study by Gomber *et al.*, stated that the prevalence of anemia in school children from urban slums, aged 5-10.9 years was 41.8% [14]. This was similar observations 44.8% prevalence in Rajarathnam, et in Tamil Nadu, al. [15] , 51.5% in a study the 5-15 years age group of urban school children in Punjab[16] and Kapoor and Aneja shows a prevalence of about 56%.[17].The results of the study shows the prevalence of anemia in girls (64.2%) was higher than in the boys (35.7%). The result of are similar to findings of Verma *et al*[16].The prevalence of anemia in our study was higher in underweight children (59.5%) when compared to children with normal BMI, and obese children. The iron rich food consumption among children is poor. A school health anemia prevention program with behaviour change communication for dietary modification and universal supplementation of iron need to be considered.In our study mild, moderate and severe anemia is 26.1%, 66.6% and 7.1% respectively but in the study conducted by Kamal Mehta et.al, [18], as similar, where mild, moderate and severe anemia present in 11(21.5%), 36 (70.3%) and 4 (7.8%) respondents respectively. And differs in study by Sartha A et. al of mild, moderate and severe anemia 56.67%, 19.33% and 0% respectively [19].

Conclusion

In our study shows that anemia in school going children is an important public health problem, its need an attention towards improve the health of children'sWe highlighted mainly the anemia, 42% is the prevalence in age group of 10-16yrs and with girls in dominating of 64.2%. Girls more are in moderate to severe form of anemia.Our study also tells that nutrition of the children to be improved with incidence of underweight and associated anemia is 59.5%.

Recommendations

Health programme for all school children with basic investigations, classes of nutrition, healthy diet, Girls should educate of menstrual problems and solutions, Evaluation of government program.

Limitation of the Study

Different Population Sample of larger size should be taken; the present study is conducted in a government school need to study in private schools also.

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