Original Research Article

Hospital based cross sectional study of assessment of anemia in children in urban Karnataka

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Abstract
Background: According to the 2001 World health Organization (WHO) data, 30% of the children aged between 0 and 4 years and 48% of the children aged between 5 and 14 years are anemic in developing countries1. In our country, the frequency of iron deficiency anemia (IDA) has been reported to range between 15.2% and 62.5% in different studies conducted with children. **Objective:** To find out the spectrum of anemia amongst paediatric age group (5-18 years). **Methodology:** Cross sectional observational study carried out at paediatric department of Khaja Banda Nawaz Institute of Medical Sciences, Kalaburgi during the period of February to May 2018. Objective: To find out the spectrum of anemia amongst paediatric age group (5-18 years). Methodology: This study was cross sectional observational study carried out at paediatric department of Khaja Banda Nawaz Institute of Medical Sciences, Kalaburgi during the period of February to May 2018. **Results:** Majority of children (56%) were between 5-10 years followed by 89(29.7%). prevalence of anemia in our study was 72.3%. Prevalence of severe anemia was seen in 68(31.3%) subjects. prevalence was more in girls i.e. 59.9% as compared to boys i.e.40.1%. Conclusion: Prevalence of anemia among the children screened was high. Almost one third of them had severe anemia. Prevalence was more in girls.
Key Word: Anemia, Prevalence, children.

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INTRODUCTION

Iron deficiency is the most common nutritional deficiency worldwide and an important public health problem especially in developing countries. There is no clear data about how many individuals are affected by iron deficiency worldwide, but it is estimated that iron deficiency is present in most of the pre-school children and pregnant women in developing countries and in at least 30- 40% in developed countries when anemia is used as an indirect indicator of iron deficiency[1]. According to the 2001 World health Organization (WHO) data, 30% of the children aged between 0 and 4 years and 48% of the children aged between 5 and 14 years are anemic in developing countries[1]. In our country, the frequency of iron deficiency anemia (IDA) has been reported to range between 15.2% and 62.5% in different studies conducted with children[2-5]. Anaemia is one of the most common health problems in India which is much more prevalent in the rural than in the urban areas.[6,7] Anemia is a nutrition problem worldwide and its prevalence is higher in developing countries when compared to the developed countries.[5,6] Young children and pregnant women are the most affected, with an estimated global prevalence of 43% and 51% respectively.[7] Anemia prevalence among children of school-going age is 37.70%, among non-pregnant women

35% and among adult males 18%.[8] Anemia was defined according to World Health Organization (WHO) cut-offs as Hb level <11 g/dL for girls and <12 g/dL for boys under 15 years old. Mild anemia was defined as hemoglobin level of 10-12.9 g/dL in males and 10-11.9 g/dL in females, moderate anemia was defined as hemoglobin of less than 7-9.9 g/dL and severe anemia as hemoglobin less than 7 g/dL.[9] The most important way to prevent anaemia is to take good diet rich in Iron. Adding vitamin- C or foods rich in vitamin C should also be provided for children, which can improve the absorption of iron.[10]

METHODOLOGY

This study was cross sectional observational study carried out at paediatric department of Khaja Banda Nawaz Institute of Medical Sciences, Kalaburgi during the period of February to May 2018.

Inclusion criteria: All children approaching to OPD between age group of 5-15 were included. After consent of informant, they were subjected for hemoglobin estimation by Sahlis method.

Exclusion criteria: Those below 5 years were excluded from study. Also those fulfilling the age criteria but do not want to participate in our study were excluded.

Statistical analysis: Data was recorded on a prestructured proforma. Complete evaluation of each case was carried out with clinical and laboratory tests. Data thus obtained was entered in MS excel sheet and analysed by using SPSS 23.0 version IBM USA.

RESULTS

Table 1: Distribution of study population according to age group

		Frequency	Percent
Age group in years	5 to 10	168	56.0
	11 to 15	89	29.7
	Above 15	43	14.3
	Total	300	100.0

In our study, we included 300 children in age group of 5-18 years. Majority of children (56%) were between 5-10 years followed by 89(29.7%) between 11-15 years age and 43(14.3%) were above 15 years age group.

Table 2: Distribution of study population according to gender

		Frequency	Percent
Gender	Boys	187	62.3
	Girls	113	37.7
	Total	300	100.0

In our study, majority were boys i.e. 187(62.3%). Male to female ratio was 1.65:1

Table 3: Prevalence of anemia in children

		Frequency	Percent
Anemia prevalence	Anemia	217	72.3
	No Anemia	83	27.7
	Total	300	100.0

Out of 300 children, 217 i.e. 72.3% had anemia. So prevalence of anemia in our study was 72.3%.

**Table 4:** Distribution according to severity of anemia

		Frequency	Percent
Anemia grades	Mild	26	12.0
	Moderate	123	56.7
	Severe	68	31.3
	Total	217	100.0

In majority of cases it was moderate type of anemia i.e. 56.7%. Prevalence of severe anemia was seen in 68(31.3%) subjects.

Table 5: Comparison of hemoglobin level with respect to age group

		Mean	SD	F	p	Inference
Age group in years	5 to 10	10.1	4.2			
	11 to 15	9.51	1.2	4.65	0.03	Significant
	Above 15	8.6	2.4			

When we compared the mean hemoglobin level with respect to age group, it was found to be significant. It means in our study hemoglobin level was less in above 15 years age group as compared to other ages.
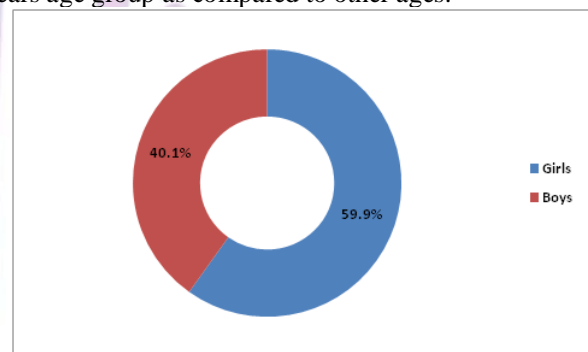
Figure 1: Prevalence of anemia and gender

Out of 217 children, prevalence was more in girls i.e. 59.9% as compared to boys i.e.40.1%

DISCUSSION

In our study, out of 300 children, 217 i.e. 72.3% had anemia. So prevalence of anemia in our study was 72.3%. In majority of cases it was moderate type of anemia i.e. 56.7%. Prevalence of severe anemia was seen in 68(31.3%) subjects. Out of 217 children, prevalence was more in girls i.e. 59.9% as compared to boys i.e.40.1% In our study hemoglobin level was less in above 15 years age group as compared to other ages.(p<0.05) According to the WHO, if the prevalence of anemia at the community levels was more than 40%, it was considered as a problem of high magnitude.[11, 12] The problem of

anemia is an important public health issue in India. Kalaburgi is a border district of Karnataka and many labourer population that migrates to and from Maharashtra as well as Telanagana. Also majority of the population is from middle and lower socio economic class. In the study by Gupta VK *et al*, the overall prevalence of anemia was 89.5% in females and 89.9% males.[13] Sudhagandhi B *et al*[14] studied anemia prevalence in 8-16 years age and observed the prevalence of anemia as 52.88%. Verma *et al*[15] carried out the study in urban schools of Punjab and found the prevalence of anemia as 51.5%.

CONCLUSION

So we conclude that prevalence of anemia among the children screened at paediatric OPD,KBNIMS, Kalaburgi was high. We also want to conclude that it almost one third of them had severe anemia. Prevalence was more in girls.

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