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FREQUENCY AND SEVERITY OF ANEMIA IN CHILDREN LESS THAN 15 YEARS OF AGE.

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Abstract:

The estimated prevalence of anemia is 39% in children less than 5 years of age and 48% in children 5-14 years of age4 in developing countries. Children suffering from anemia are more susceptible to infection and impaired motor and cognitive development. Factors associated with lower hemoglobin levels in children are Lack of awareness among mothers, poor nutrition, unhealthy food habits, and parasitic infestations. The aim of the study was to evaluate severity and frequency of anemia in children. The association of anemia with the age and gender were secondary goals. Moreover many studies has recommended that at the population level to significantly improve the iron status wheat flour fortification must be used. The more emphasis is on high frequency of anemia in children to bring down the total prevalence.

Among school-age children and adolescent boys, those who have a history of iron deficiency anemia, special health-care needs, or low iron intake should periodically be screened for anemia and appropriate measures be taken.

The frequency of anemia was high in age group 1-58 months. The prevalence of anemia less than age 15 was 66.4% whereas gender was not significantly associated with anemia.

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INTRODUCTION:

When the physiological needs of the body decreased due to insufficient number of red blood cells the condition is known as anemia. Anemia is affecting people around the globe in both develop and under develop countries with severe side effects on human health as well as economic burden. It is a critical condition because it hampers the growth and energy levels. World health organization (WHO) has stated that there are 2 billion people worldwide who are living with anemia.

The estimated prevalence of anemia is 39% in children less than 5 years of age and 48% in children 5-14 years of age4 in developing countries. Children suffering from anemia are more susceptible to infection and impaired motor and cognitive development. Factors associated with lower hemoglobin levels in children are Lack of awareness among mothers, poor nutrition, unhealthy food habits, and parasitic infestations. The aim of the study was to evaluate severity and frequency of anemia in children. The association of anemia with the age and gender were secondary goals.

MATERIAL AND METHODS:

It was a cross-sectional study. Total 180 participants included in this study. Participants were divided into three groups according to their age group-1 (age 6-59 months), group-2 (age: 5-11 years), and group-3 (age: 11-14 years. WHO provided definitions of anemia were used in the study.

SPSS version 21 was used for data analysis. The frequencies and percentages, means, and standard deviations were calculated for categorical and numerical data respectively. The association of anemia with gender and age-group was analyzed using Pearson's Chi-square analysis. 0.05 p value was set significant.

RESULTS:

The mean age was 7.4 ± 3.4 years and age ranges from 1-13 years. 180 participants were included in the study. In which 90 were male and 90 were female. There were 45 children in group 1, 70 children in group 2 and 65 were in group 3. The mean hemoglobin level in males was 10.4 ± 3.2 g/dl and in females was 10.2 ± 2.1 g/dl hence there was no significant difference in both group regarding age. Whereas the age groups were significantly different in case of mean hemoglobin from each other. Highest mean level of hemoglobin was seen in eldest group (group 3) as compared to group 1 and group 2. However, the mean hemoglobin level in group 2 was remarkably high than group 1. The frequency of anemia was 66.7% whereas among male children it was 64% and females 67.9%. According to group wise, in group 1 the percentage was 75.4%, in the group 2 there was 62.4% percentage while group3 had 53.1%.

Table 1 Hemoglobin levels to diagnose anemia according to the World Health Organization guidelines.

Age-group	Normal hemoglobin levels in g/dL	Anemia		
		Mild	Moderate	severe
Children 6-59 months of age	11.0 or higher	10.0-10.9	7.0-9.9	lower than 7.0
Children 5-11 years of age	11.5 or higher	11.0-11.4	8.0-10.9	lower than 8.0
Children 11-14 years of age	12.0 or higher	11.0-11.9	8.0-10.9	lower than 8.0

Table-II: Frequency and severity of anemia in different age groups.

	Groups based on age		
	Group 1 (6-59 months)	Group 2 (5-11 years)	Group 3 (11-14 years)
	Mean ± standard deviation		
	9.7 ± 1.9	10.7 ± 1.7	11.3 ± 2.3
Sample groups based on hemoglobin levels	n (%)		
Normal value	41 (25.5)	72 (35.8)	58 (48.7)
Mild Anemia	38 (23.6)	33 (16.4)	26 (23.1)
Moderate anemia	65 (40)	79 (38.8)	24 (17.9
Severe anemia	19 (10.9)	17 (9)	13 (10.3)

DISCUSSION:

To diagnose the extent and severity of anemia there must be measurement of hemoglobin level because it is an important hematological parameter. Many studies have reported that reason of impaired motor and mental development in children is due to moderate anemia and which could not be reversible.

In Pakistan low socioeconomic group are greatly affected from anemia. Literature has reported the prevalence of anemia about 61-78.7%. The frequency measured by the current study is also within the same range (66.4%). According to the studies the prevalence of anemia has disclosed that Iron deficiency anemia was the major leading cause of anemia in children. The contributing factors of anemia have been identified as poverty, consumption of low iron diets, inappropriate dietary habits, poor personal hygiene, and lack of sanitation.

The current study has showed that prevalence of anemia was high among age group of 6-58 months. These results are somehow similar to a survey in which the prevalence of anemia was significantly associated with the child's age, so that the youngest children had the highest odds of developing anemia. However, another study was conducted which has showed highest prevalence of anemia in children age group 1-14 years. In contrast there other studies who reported that found highest percentage of anemia in the eldest age-group of 10-12 years among the sampled children.

There was high prevalence of anemia in children below 5 years observed in India. Other regions study has also reported that younger age as an important risk factor of anemia. The reason for increased prevalence in younger children can be related to the higher incidence of anemia during pregnancy and lactation. Anemic mothers are prone to give birth to children with moderate to severe anemia. As children are exclusive breastfed during initial months, and the breast milk lacks adequate iron content, the increased prevalence of anemia in younger children is logical. At higher age, children start eating weaning foods such as meat, fish, or eggs that are rich in haem iron, thus improving anemia. Secondly, since first two years of life are characterized by rapid growth demanding increased iron utilization, the risk of anemia particularly iron deficiency anemia is increased. We did not find association of anemiawith gender of the sampled children. Similar findings were observed by Kishwar et al in a study. However, other studies have found an association of anemia with gender with some reporting higher incidence in female children and others, a higher incidence in male children. There are conflicting evidences in the international data with regard to the relationship between gender and anemia in children. Studies conducted Yemen and India have reported higher prevalence of anemia in girls as compared to boys and studies from Kenya and Haiti, have mentioned that boys are more to have anemia. Considering the burden of anemia in children, it is essential that interventions such as iron supplementation and food fortification should be used at mass scale. Currently wheat flour fortification and iron supplementation are successful strategies being used worldwide.

Moreover many studies has recommended that at the population level to significantly improve the iron status wheat flour fortification must be used. The more emphasis is on high frequency of anemia in children to bring down the total prevalence.

Among school-age children and adolescent boys, those who have a history of iron deficiency anemia, special health-care needs, or low iron intake should periodically be screened for anemia and appropriate measures be taken.

CONCLUSION

The frequency of anemia was high in age group 1-58 months. The prevalence of anemia less than age 15 was 66.4% whereas gender was not significantly associated with anemia.

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