Original Research Paper

Pathology

A STUDY OF ANEMIA IN HOSPITALISED INFANTS AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Anemia is a significant public health problem that occurs worldwide with higher prevalence noted in children less than 3 years.

Objective: This study was done to evaluate the proportion, morphological patterns and severity of anemia among hospitalized infants.

Material and Methods: A prospective study was done on infants between 6-12 months of age presenting to paediatric OPD of a tertiary care hospital over a span of one year. We evaluate the results of complete blood count and peripheral blood smear of all hospitalized infants after taking informed consent from the parents. The WHO criterion (hemoglobin< 11 g/dL) was used to diagnose anemia . To categorize the degree of anemia, the following cut-off points were used: 10.0-10.9 g/dL – mild anemia; 7.0-9.9 g/dl – moderate anemia; < 7 g/dl – severe anemia.

Results: Out of 240 cases, 95(39.5%) infants were found to be anemic . 55 male and 40 female infants were found to be anemic. Commonest pattern of anemia was microcytic hypochromic(68.4%) suggesting iron deficiency as the major cause for nutritional anemia in infants. 51.5% of infants had moderate to severe anemia. Conclusion: We conclude that it is important to determine the proportion, morphological patterns and severity of anemia in infants so that we can direct the investigation for profiling the etiology since it is well known that the treatment of anemia goes a long way in improving the overall outcome and quality of life.

KEYWORDS : anemia, infants, proportion, pattern, severity

Introduction :

Anemia is a significant public health problem that occurs worldwide in both developed and developing countries.[1] In absolute numbers anemia affects 293 million children, out of which 89 million live in India. India is one of the countries with very high prevalence of nutritional anemia in the world [2]. According to NFHS-3 data, 79% of infants in the age group between 6-35 months of age are anemic in India. [3]Causes of anemia vary by age. During infancy it is due to increased iron requirements related to rapid growth and development but other factors such as preterm delivery, low birth weight, faulty feeding techniques, not starting right type of complementary food at the right time and failure of exclusive breast feeding are also involved. In India weaning food is predominantly cereal based which is a poor resource of iron and not including pulses/vegetables/fruits for a prolonged period can lead to iron deficiency. Most infants with anemia are asymptomatic but they can have nonspecific symptoms like irritability and anorexia. Further, anemia in infancy and early childhood is associated with behavioral and cognitive delays, including impaired learning, decreased social achievement, and lower scores on tests of mental and motor development. The Neurological complications once established are irreversible.[1] The sparse literature available regarding anemia in hospitalized children necessitated the need for the present study and early screening and detection of anemia will in turn help in early and better management. Aims: This study was done to evaluate the proportion, morphological patterns and severity of anemia among hospitalized infants.

Materials and Methods:

A prospective study was done on infants presenting to the paediatric OPD of a tertiary care hospital over a span of one year. We evaluate the results of complete blood count and peripheral blood smear of all hospitalized infants. Peripheral smears were stained with Leishman stain. The WHO criterion (hemoglobin< 11 g/dL) was used to diagnose anemia. To categorize the degree of anemia, the following cut-off points were used: 10.0-10.9 g/dL – mild anemia; 7.0-9.9 g/dl – moderate anemia; < 7 g/dl – severe anemia. Patterns of anemia were classified based on RBC indices which was further correlated with peripheral smear. Normocytic anemia was defined as MCV between 80 fl and 100 fl, microcytic as MCV below 80 fl and macrocytic as MCV above 100 fl.

Results : Out of 240 cases, 95(39.5%) infants was found to be anemic.55 male and 40 female infants were found to be anemic. Commonest pattern of anemia was microcytic hypochromic(68.4%) suggesting iron deficiency   as the major cause for nutritional

anemia in infants, followed by normocytic normochromic anemia in 28.4% of cases. Dimorphic anemia was seen in only 3.15% of cases as shown in table 1.

Table 1: Distribution of anemic subjects according to patterns of anemia.

Pattern of anemia	CASES	PERCENTAGE
Microcytic hypochromic	65	68.4%
Normocytic normochromic	27	28.4%
Dimorphic	03	3.15%
Total	95	100%

46(48.4%) infants presented with mild anemia, 44(46.3%) with moderate and 05(5.26%) with severe anemia as shown in table 2.

Table 2: Distribution of anemic subjects according to severity of anemia.

Pattern of anemia	CASES	PERCENTAGE
Mild	46	48.4%
Moderate	44	46.3%
Severe	05	5.26%

Discussion:

Out of 240 cases, 95(39.5%) infants were found to be anemic in our study. Out of total 260 infants, 147(56%) were found to be anemic in a study done by KS Sahana et al.1 Saba F et al had conducted a study in children between 6months to 12 years and found that children between 6 months to 1 year was the most affected group with anemia(33%).4Male to female ratio in our study was 1.3:1 which was in contrast to the study done by KS Sahana et al1 where female sex was dominant comprising 81%. In our study microcytic hypochromic anemia was most common which was similar to the study done by KS Sahana et al1 where microcytic anemia was most common(69%).It was in contrast to the study done by Ratna S et al5 where normocytic normochromic anemia was more common (55%). In our study mild to moderate anemia was noted in majority of cases which is in accordance with study done by saba F et al.4 Conclusion: Anemia therefore is a common and underappreciated problem in all developing countries. It is important to determine the proportion, morphological patterns and severity of anemia in infants so that we can direct the investigation for profiling the etiology since it is well known that the treatment of anemia goes a long way in improving the overall outcome and quality of life.

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