www.jmscr.igmpublication.org
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossrefDOI: https://dx.doi.org/10.18535/jmscr/v7i1.126

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Original Research Article

Prevalence of Anemia in Children's, Attending in Tertiary Care Hospital at Bettiah, West Champaran, Bihar

Authors
Dr (Prof.) Uday Shanker Pandey[1], Dr Pramod Kumar[2], Dr Satyendu Sagar[3*]
[1]Professor and HOD, Department of Pathology, Government Medical College, Bettiah, West Champaran, Bihar
[2]Assistant Professor, Department of Pathology, Government Medical College, Bettiah, West Champaran, Bihar
[3]Assistant Professor, Department of Microbiology, Nalanda Medical College, Patna
*Corresponding Author
Dr Satyendu Sagar
Assistant Professor, Department of Microbiology, Nalanda Medical College, Patna, India

Abstract
Objective: *The aim of present study was to determine the prevalence of Anemia and types of anemia as well as factors associated with severe anemia among the children's of Pediatric age groups.*
Material and Methods: *A total of 86 children's were included in the study. Mean corpuscular volume (MCV) and Hemoglobin (HB), Serum ferritin and hematocrit levels were measured.*
Result: *The prevalence of ID and IDA was 31.4% and 25.58% respectively. The tendency to have IDA in children's fed with cow's milk and children's who did not receive iron supplements (ferrous sulphate) was higher than in the other infants.*
Conclusion: *ID and IDA were common among children's aged 6 months to 6 years of age. Maintenance of exclusive breast feeding up to 4-6 month of the life and iron supplementation for the target group in needed*
Keywords: *Anemia, Hemoglobin, IDA, ID, The World Health Organization (WHO), Megaloblastic anemia.*

Introduction

Anemia as a condition in which blood hemoglobin level is more than two standard deviations below the mean for the child's age and sex. The World Health Organization (WHO) defines, according to the third national family health survey (NFHS-3), 79% of Indian children have anemia, including 71% of urban children and 84% of those in rural areas.

Causes of anemia in Infants are maternal infections, collagen vascular diseases, prematurity, blood loss (hemolysis due to ABO or Rh incompatibility, G6PD deficiency, sepsis), Jaundice. In Infants and young children due to dietary deficiency including type and quality of milk and intake of hematinics. In 6 months to 2 yrs of Age anemia is due to delayed or inadequate weaning with predominantly milk based diet results in poor iron intake leading to nutritional

iron deficiency, chronic diarrhea or cow milk allergy. Megaloblastic anemia is due to use of goat milk lack of vitamin B_{12} folic Acid for infants and a vegetarian diet in older children. Thalassemia Minor Over 70% of patient with thalassemia major present with Anemia by 6 months of Age.

Most common and earliest symptoms include lassitude and easy fatigability. Children may have anorexia, irritability and poor school performance. dyspnoea on exertion, tachycardia and palpitations, dizziness, headache tinnitus, lack of concentration and drowsiness. With severe anemia, clouding of consciousness may occur. Most important, prominent and characteristic sign is pallor detected in nail beds, oral mucous membranes and conjunctiva. Facial pallor varies with skin pigmentation and presence of edema. A mid systolic flow murmur, will be found in pulmonary Area, when degree of anemia will be severe. Postural hypotension may be noted. Anemia may precipitate heart failure even with a normal cardiovascular system.

Material and Methods

The present study was conducted in the Department of pathology, Government Medical College, Bettiah, West Champaran, Bihar and with the help of Department of Pediatrics, during the period of September 2018 to January 2019. This study was a cross-sectional study of the Prevalence of IDA in 6 month to 6 years of age group. In this age parents try to feed their children by meal and not milk. A total of 86 healthy children attending the pediatrics OPD and IPD were studying. Detailed history and clinical examination were done. Children with active hemorrhage, bleeding disorders, history of blood transfusion and surgery within two months prior to admission were excluded. Information regarding patient age, sex, residence, birth, weight, natal history of prematurity, breast feeding practices, age at introduction of the food types, type of complementary food in the first year of life, habit of taking tea and 24 hour dietary recall will be obtained from parents. Additional information that was taken included family history of sickle cell disease, history of chronic illness, blood transfusion and being on medication. Nutrition evaluation will be done according to WHO reference standard for malnutrition.

After detailed history and clinical examination blood samples were obtained. Mean corpuscular volume, Hb, ferritin, and Hematocrit (Hct) were analyzed on three part Horiba CBC system.

Result

Out of 86 children's, 35 (40.7%) were boys and 51(59.3%) were girls. The age ranged from 6 months to 6 years. Out of 86 children's, 22 cases (25.58%) suffered from IDA, 27 cases (31.4%) had ID without anemia and 37 children's (43.02%) had anemia.

The mean Hb, MCV, Hct and ferritin in girls was significantly higher than in boys (11.56 gm/dl, 76.66fl, 34.91%, 33.58 ng/ml Vs. 10.86 gm/dl, 72.41 fl, 33.25%, 22.51 ng/ml). There was no significant difference between IDA and children birth order. Educational level of the mother did not have an effect on the iron status of her infants.

In the analysis of feeding habits we found that 63 (73.25%) of the children were exclusively breastfed up to 6 months, 12 (13.95%) were fed with formula milk and 11 (12.79%) of the infants were fed with cow's milk. The tendency to have IDA was 18 (28.6%) in infants exclusively breastfed, 2 (16.66%) in children's fed with formula milk and 100% in infants fed with cow's milk and the difference was statistically significant. The tendency to have IDA in children fed with solid food before 6 months was higher than in children in whom the solid food was introduced after 6 months of life (50% vs. 25%, respectively).

Among the children's, 60 cases received ferrous sulfate irregularly, 18 cases regularly and 8 cases never received ferrous sulfate. The incidence of IDA in the first group was 17 (28.33%), in the second group was 1 (5.55%) and in the third group were 6 (75%). The difference between IDA and ferrous sulfate administration was statistically significant.

Discussion

Anemia is a common public health problem in developing countries, especially in rural communities with below poverty line people. The highest prevalence of anemia was seen in children less than 10 years, especially in those 5 years. In India, over 95% of children are breastfed. The WHO recommends food like cereals, pulses, mixed green vegetables, cow milk at the age of six months because breastfeeding only cannot maintain optimal growth after this age. However, at age 6-8 month only 45% of children receiving breastfeeding are given solid or semisolid food. Moreover, only 10% of breastfeeding children and 20% of non-breastfeeding children aged 6-35 month eat meat, fish or eggs, which are rich in heam iron with high bioavailability. In the NFHs-3, only 14.6% of children aged 6-35 month consumed food rich in iron in the previous 24 hours of the survey. At this age, due to iron deficiency development of central nervous system may delay and cannot be totally reversible.

Consequently, the Indian Government recommends iron and folic acid supplementation to younger children however; due to the poor management and lack of awareness this supplementation programme is fail. It is estimated that most children and pregnant women in developing and 40% in developed countries are iron deficient. The most recent study conducted among rural school children in India reported, a prevalence of 48.5% for anemia and 34% for IDA. Similarly, another local study which has been conducted among rural children documented 41.5% and 36% of anemia and IDA. The Government of India has made the children health as a part of RCH package since 1997. The anemia in this age group has been identified as an important health problem by De Mayer and Adiels-Tegman.

WHO and UNICEF have suggested that the problem of anemia is of very high magnitude in a community when prevalence rate exceeds 40%. Considering that anemia causes major complications in increasing of age especially in adolescent girls when their prevalence rate is 59.8% should be considered serious. The mean hemoglobin in the present study was 11.56+1.7gm/d1 which was higher than that reported by Mehta et al (10.6+1.2 gm/dl) and lower that Kotecha et al. reported as 11.8+1.4 gm/dl. High prevalence of anemia demands due emphasis so as to bring down total prevalence of anemia in adolescent girls verma et al also quoted that compared to non vegetarians.

Conclusion

Study supports the value of food supplementation, food fortification and nutritional education to improve the situation that should be instituted. The findings of the study will assist the government of India and policy makers to take necessary steps and design proper interventions.

References

1. WHO. Worldwide prevalence of anemia 1993-2005. In: de Benoist B, McLean E, Egli I, Cogswell M, editors. WHO global database on anemia. Geneva: World Health Organization; 2008.
2. WHO. Iron deficiency anemia, assessment, prevention, and control. A guide for programme managers, Geneva; World Health Organization; 2001.
3. Mei Z, Cogswell ME, Parvanta I, Lynch S, Beard JL, et al. Hemoglobin and ferritin are currently the most efficient indicators of population response to iron interventions: An analysis of nine randomized controlled trials. J Nutr. 2005; 135:1974-1980.
4. Gopalan C. Strategies for combating under nutrition: lessons learned for the future. In: Nutrition in development transition in Southeast Asia. New Delhi: World Health Organization; 1992. pp. 109-111.
5. Crompton DWT, Stephenson LS. Hookworm infection, nutritional status and productivity. In: Schad GA, Warren KS, editors. Hookworm disease: Current status and new directions. London: Taylor 85 Francis; 1990.

6. Larocque R, Casapia M, Gotuzzo E, Gyorkos TW.Relationship between intensity of soil-transmitted . helminth infections and anemia during pregnancy. Am J Trop Med Hyg. 2005; 73:783-789.
7. Robertson LJ, Crompton DW, Sanjur D, Nesheim MC. Haemoglobin concentrations and concomitant infections of hookworm and Trichuris trichiura in Panamanian primary schoolchildren. Trans R Soc Trop Med Hyg. 1992; 86:654-656.
8. Seshadri S, Gopaldas T. Impact of iron supplementation on cognitive functions in preschool and school-aged children: the Indian experience. Am J Clin Nutr. 1989; 50:675-686.
9. Yip R, Ramakrishnan R. Experiences and Challenges in developing countries. J Nutri. 2002; 4:129-132.
10. Foy H, Nelson GS. Helminths in the etiology in the tropics, with special reference to hookworms and schistosomes. Exp Parasitol. 1963; 14:240-262.