

A study of prevalence and factors associated with anemia in the paediatric patients at tertiary health care centre

K Kashi Viswanadham¹, Bhagat Baghel^{2*}

¹Professor, ²Associate Professor, Department of Paediatrics, Late Bali Ram Kashyap Memorial Government Medical College Jagdalpur, Chhattisgarh, INDIA.

Email: bhagatbaghel75@yahoo.com

Abstract

Background: Anaemia is a major public health problem in developing countries. The global estimate of childhood anaemia indicates that 293.1 million (approximately 43 %) of children under five years are anaemic worldwide. **Aims and Objectives:** To Study prevalence and factors associated with Anemia in the paediatric patients at Tertiary health care centre. **Methodology:** This was a cross-sectional study in the less than six years children admitted for various illness and having anemia (low hemoglobin on routine investigation) in the pediatric department of a tertiary health care center during the year January 2015 to January 2016. During one year there were 310 patients were included into the study. The data was presented in the tabular form and expressed in the percentages. Result: The most common age group in our study was 1-2 Yrs. Was 36.13 % followed by 2-3 Yrs. were 20.97%, 3-4 Yrs. - 16.77 %, <1 Yrs. were 14.52 %, 4-5 Yrs. were 8.71 %, 5-6 Yrs. were 2.90 %. The majority of the patients were Female i.e. 62%, followed by Male 35%. The most common clinical features were H/o ARI in 56%, followed by H/o Diarrhea in 45%, H/o Infection in 38%, Body ache in 28%, Splenomegaly in 21%, Easy fatigability in 15%, Poor Concentration in 12%, Delayed mile stones in 10%, Breathlessness in 8%. As per the Grade of Anemia Mild were 56%, followed by Moderate in 29%, Severe in 15%. The most common associated factors were; Undernourished Children were 65%, followed by, H/o ARI in 56%, H/o Diarrhea in 45%, H/o Malaria in 29%, H/o Worm infestation in 23%, Lower SES in 19%, Pure vegetarian were 17%, Not exclusive breast feeding was found in 15%. **Conclusion:** It can be concluded from our study that the most common clinical features of anemia in children were H/o ARI, followed by H/o Diarrhea, H/o Infection, Body ache Splenomegaly, Easy fatigability etc. and the most common associated factors were Undernutrition, H/o ARI, H/o Diarrhea, H/o Malaria, H/o Worm infestation, Lower SES Pure vegetarian, Not exclusive breast feeding etc. **Key Words:** ARI, Diarrhea, Lower SES (Socio Economic Status), Breast feeding.

*Address for Correspondence:

Dr. Bhagat Baghel, Associate Professor, Department of Paediatrics, Late Bali Ram Kashyap Memorial Government Medical College Jagdalpur, Chhattisgarh, INDIA.

Email: bhagatbaghel75@yahoo.com

Received Date: 11/07/2017 Revised Date: 20/08/2017 Accepted Date: 16/09/2017

DOI: <https://doi.org/10.26611/1014334>

Access this article online

Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 19 September 2017

INTRODUCTION

Anaemia is a major public health problem in developing countries¹. The global estimate of childhood anaemia indicates that 293.1 million (approximately 43%) of

children under five years are anaemic worldwide¹. It is considered a major public health problem reaching 67 % prevalence, equivalent to 83.5 million children in sSA¹. Anaemia can be managed without blood transfusion but even where blood transfusion is available there is still a significant case fatality rate of 6–18 %². The prevalence's anemia in developing country ranges between 44 and 76%²⁻⁴. The risk factors for anaemia vary in different settings; they include having intestinal parasites, malaria, HIV infection, nutritional deficiencies and habit of taking tea with meals, haematological malignancies and chronic diseases like sickle cell disease (SCD)⁵⁻⁸. Anaemia in childhood may also result from factors such as poor socioeconomic status and maternal health status including presence of iron deficiency anaemia²

MATERIAL AND METHODS

This was a cross-sectional study in the less than six years children admitted for various illness and having anemia (low hemoglobin on routine investigation) in the pediatric department, Late B.R.K.M. Government Medical College and associated Maharani Hospital Jagdalpur during the year January 2015 to January 2016. During one year there were 310 patients were included into the study. The details of the patients like age, sex, Routine investigations like CBC, HB and Grading of Anemia as per the WHO Hb. values into Mild, Moderate, Severe, Clinical features and the associated any factors like nutritional status (Calculated by WHO growth chart), H/o infections like ARI, Diarrhea, Worm infestation, Socio Economic status (Calculated by Modified BG Prasad) and type of diet was asked. The data was presented in the tabular form and expressed in the percentages.

RESULT

Table 1: Distribution of the patients as per the Age

Age	No.	Percentage (%)
<1	45	14.52
1-2	112	36.13
2-3	65	20.97
3-4	52	16.77
4-5	27	8.71
5-6	9	2.90
Total	310	100.00

The most common age group in our study was 1-2 Yrs. was 36.13% followed by 2-3 Yrs. were 20.97 %, 3-4 Yrs. - 16.77%, <1 Yrs. were 14.52%, 4-5 Yrs. were 8.71%, 5-6 Yrs. were 2.90%.

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Female	192	62
Male	118	38.00
Total	350	100

The majority of the patients were Female i.e. 62%, followed by Male 35%.

Table 3: Distribution of the patients as per the clinical features

Clinical feature	No.	Percentage (%)
H/o ARI	174	56
H/o Diarrhea	140	45
H/o Infection	118	38
Body ache	87	28
Splenomegaly	65	21
Easy fatigability	47	15
Poor Concentration	37	12
Delayed mile stones	31	10
Breathlessness	25	8

The most common clinical features were H/o ARI in 56%, followed by H/o Diarrhea in 45%, H/o Infection in 38%, Body ache in 28%, Splenomegaly in 21%, Easy

fatigability in 15%, Poor Concentration in 12%, Delayed mile stones in 10%, Breathlessness in 8%.

Table 4: Distribution of the patients as per the Grade of Anemia

Grade	No.	Percentage (%)
Mild	174	56
Moderate	90	29
Severe	47	15

As per the Grade of Anemia Mild were 56%, followed by Moderate in 29%, Severe in 15%.

Table 5: Distribution of the patients as per the associated factors

Associated factors	No.	Percentage (%)
Undernourished	202	65
H/o ARI	174	56
H/o Diarrhea	140	45
H/o Malaria	90	29
H/o Worm infestation	71	23
Lower SES	59	19
Pure vegetarian	53	17
Not exclusive breast feeding	47	15

The most common associated factors were; Undernourished Children were 65%, followed by, H/o ARI in 56%, H/o Diarrhea in 45%, H/o Malaria in 29%, H/o Worm infestation in 23%, Lower SES in 19%, Pure vegetarian were 17%, Not exclusive breast feeding was found in 15%.

DISCUSSION

Most anemia cases develop gradually and progressively and are due to iron deficiency. In early childhood, bad feeding habits, especially during the weaning period, exacerbate the problem. Anemia frequently develops as breast milk is replaced by foods that are poor in iron and other nutrients, including vitamin B¹² and folic acid.^{9,10} Low oxygenation of brain tissues, a consequence of anemia, may lead to impaired cognitive function, growth and psychomotor development, especially in children.¹¹ Infants, under 5-year-old children and pregnant women have greater susceptibility to anemia because of their increased iron requirements due to rapid body growth and expansion of red blood cells.¹² In our study we have seen that The most common age group in our study was 1-2 Yrs. was 36.13 % followed by 2-3 Yrs. were 20.97 %, 3-4 Yrs. - 16.77 %, <1 Yrs. were 14.52 %, 4-5 Yrs. were 8.71 %, 5-6 Yrs. were 2.90 %. The majority of the patients were Female i.e. 62%, followed by Male 35%. The most common clinical features were H/o ARI in 56%, followed by H/o Diarrhea in 45%, H/o Infection in 38%, Body ache in 28%, Splenomegaly in 21%, Easy fatigability in 15%, Poor Concentration in 12%, Delayed mile stones in 10%, Breathlessness in 8%. As per the Grade of Anemia Mild were 56%, followed by Moderate in 29%, Severe in 15%. The most common associated factors were;

Undernourished Children were 65%, followed by, H/o ARI in 56%, H/o Diarrhea in 45%, H/o Malaria in 29%, H/o Worm infestation in 23%, Lower SES in 19%, Pure vegetarian were 17%, Not exclusive breast feeding was found in 15%. These findings are similar to Bala Gopal Muthusamy¹³ they found Out of 270 children in the age group of less than 2 years 72% of children were anemic. In the age group of 2-5 years 55.7% of children were anemic. Nearly 2/3 of children in less than 5 years of hospitalized children were anemic. Overall 50% of children between 1 month to 12 years were anemic. System wise analysis have shown 57% of respiratory cases, 47 % of gastrointestinal cases and 48% of infectious disease cases were anaemic. Also Rehema H. Simbouranga¹⁴ they found The overall prevalence of anaemia was 77.2 % (346/448) with mild, moderate and severe anaemia being 16.5, 33 and 27.7 % respectively. Microcytic hypochromic anaemia was detected in 37.5 % of the children with anaemia. Of 239 children with moderate and severe anaemia, 22.6 % (54/239) had iron deficiency anaemia based on serum ferritin level less than 12 µg/ml. The factors associated with severe anaemia included unemployment of the parent, malaria parasitaemia and presence of sickle haemoglobin

CONCLUSION

It can be concluded from our study that the most common clinical features of anemia in children were H/o ARI, followed by H/o Diarrhea, H/o Infection, Body ache Splenomegaly, Easy fatigability etc. and the most common associated factors were Undernutrition, H/o ARI, H/o Diarrhea, H/o Malaria, H/o Worm infestation, Lower SES Pure vegetarian, Not exclusive breast feeding etc.

REFERENCES

- McLean E, Cogswell M, Egli I, Wojdyla D, de Benoist B. Worldwide prevalence of anaemia, WHO Vitamin and Mineral Nutrition Information System, 1993–2005. *Public Health Nutr.* 2009; 12:444–54.
- Schellenberg D, Schellenberg JR, Mushi A, Savigny D, Mgalula L, Mbuya C, et al. The silent burden of anaemia in Tanzanian children: a communitybased study. *Bull World Health Organ.* 2003; 81:581–90.
- Chatterjee A, Bosch RJ, Kupka R, Hunter DJ, Msamanga GI, Fawzi WW. Predictors and consequences of anaemia among antiretroviral-naïve HIV-infected and HIV-uninfected children in Tanzania. *Public Health Nutr.* 2010; 13:289–96.
- Makubi AN, Mugusi F, Magesa PM, Roberts D. Risk factors for anaemia among HIV infected children attending care and treatment clinic at Muhimbili National Hospital in Dar es Salaam. *Tanzania Health (San Francisco).* 2012; 14:1–9.
- Magalhaes RJ, Clements AC. Mapping the risk of anaemia in preschool-age children: the contribution of malnutrition, malaria, and helminth infections in West Africa. *PLoS Med.* 2011; 8:e1000438.
- Muoneke VU, ChidiIbekwe R. Prevalence and aetiology of severe anaemia in under-5 children in Abakaliki South Eastern Nigeria. *PediatrTher.* 2011; 01:3–7.
- Pasricha S-R, Black J, Muthayya S, Shet A, Bhat V, Nagaraj S, et al. Determinants of anemia among young children in rural India. *PediatrTher.* 2010; 126:e140–149.
- Villamor E, Mbise R, Spiegelman D, Ndossi G, Fawzi WW. Vitamin A supplementation and other predictors of anemia among children from Dar Es Salaam, Tanzania. *Am J Trop Med Hyg.* 2000;62:590–7
- Rolo S, Morgado M. Anemia: terapêutica farmacológica. *Rev de la Ofil.* 2006; (16): 34-40
- Torres MA, Sato K, Queiroz SS. [Anemia in children under 2 years in basic health care units in the State of São Paulo, Brazil]. *Rev Saúde Pública* 1994; 28(4): 290-4 Portuguese
- Walter T, de Andraca I, Chadud P, Perales CG. Iron deficiency anemia: adverse effects on infant psychomotor development. *Pediatrics.* 1989; 84(1): 7-17
- Silva DG, Franceschini SC, Priore SE, Ribeiro SM, Szarfarc SC, Souza SB, et al. Anemia ferropriva em crianças de 6 a 12 meses atendidas na rede pública de saúde do município de Viçosa, Minas Gerais. *Rev Nutr.* 2002; 15(3): 301-8
- Muthusamy BG, Venugopal V, Sumithra S. Prevalence of anaemia among the hospitalized children in a rural tertiary care teaching hospital. *Int J Contemp Pediatr* 2017;4:431-7.
- Rehema H. Simbouranga, Erasmus Kamugisha, Adolfine Hokororo. Prevalence and factors associated with severe anaemia amongst under-five children hospitalized at Bugando Medical Centre, Mwanza, Tanzania. Simbouranga et al. *BMC Hematology* (2015) 15:13 DOI 10.1186/s12878-015-0033-5

Source of Support: None Declared
Conflict of Interest: None Declared