

Original article:

Study of clinical profile of children aged 6 months to 5 years presenting with severe anaemia

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Abstract

Introduction: Present study is proposed to be undertaken to study the common etiological factors leading to the development of severe anemia as well as the common presenting features in children. The results of the study is expected to aid in the timely and appropriate management of severe anemia as well as guide the institution of effective preventive strategies.

Methodology: Study conducted over a period of two years from January, 2021 to December, 2022. But sample collected in the duration from January 2021 to June 2022. All patients admitted during the study period and meeting the inclusion criteria included in the study.

Results: Fever was the most common presenting complaint, seen in 45 (75%) patients. Cough was a presenting complaint in 23 patients, which was the second most common presenting complaint. 7 patients complained of decreased activity and difficulty in breathing was present in 7 patients. Only 9 patients (15%) complained of paleness of skin at the time of presentation. Other common complaints were fatigue, swelling over body and decreased oral intake. 5 patients complained of pica and 3 patients complained of abdominal pain. Rash over body was there in one patient.

Conclusion: Anemia is a preventable cause of significant morbidity in children under 5 years of age. Male and female children are equally susceptible to develop anemia. Children between 1-3 years are particularly susceptible to develop anemia.

Keywords: Anaemia, iron deficiency anaemia, fever

Introduction:

The early treatment of anemia and its eradication could not only improve growth, but also the intellectual capacities of children[1]. Indeed, the consequences of the anemia among preschoolers are serious and include: impairment of cognitive function, impaired motor development and growth, declining academic performance,

decreased immune function which exposes children to infections, decreased responsiveness and activity, and fatigue[2-5]. These can irreversibly compromise the future development of a child. In addition to this some children will experience acute life threatening clinical events, including tachycardia, tachypnoea, hypotension, respiratory distress, and congestive heart failure[6]. Anemia affects one-quarter of the world's population and is concentrated in preschool- aged children, making it a global public health problem, particularly for paediatric age group. It is associated with socioeconomic, biological, environmental and nutritional factors, many of which are preventable. However, data on relative causal factors are lacking, which makes it difficult to effectively address the problem[7,8]. Present study is proposed to be undertaken to study the common etiological factors leading to the development of severe anemia as well as the common presenting features in children. The results of the study is expected to aid in the timely and appropriate management of severe anemia as well as guide the institution of effective preventive strategies.

Material and methods:

Study design: Cross sectional descriptive study

Place of study: Department of Paediatrics, Tertiary Health Care Government Teaching Hospital

Duration of study: Study conducted over a period of two years from January, 2021 to December, 2022. But sample collected in the duration from January 2021 to June 2022.

Sampling methods : All patients admitted during the study period and meeting the inclusion criteria included in the study.

Inclusion criteria:

- 1) All children admitted to the paediatric ward with severe anemia defined as hemoglobin concentration $<7\text{g/dl}$ between the age of 6 months to 5 years included

Exclusion criteria:

- 1) Children with a prior diagnosed cause of anemia
- 2) Children with prior history of blood transfusion
- 3) Children with history of any surgical procedure in prior 3 months
- 4) Children with active haemorrhage/acute bleed/trauma.
- 5) Children who died within 24 hours of admission to the hospital

Results

A total of 60 children were enrolled as study population and statistical analysis revealed the following observations.

Out of 60 patients enrolled in the study, 53% were males and 47% were female, thus showing a slight male preponderance.

Table 1: Presenting complaints

PRESENTING COMPLAINT	NO OF PATIENTS	PERCENTAGE
FEVER	45	75
PALENESS OF SKIN	9	15
DECREASED ACTIVITY	7	12
FATIGUE	4	7
DIFFICULTY IN BREATHING	7	12
COUGH	23	38
SWELLING OVER BODY	5	8
PICA	5	8
DECREASED ORAL INTAKE	16	27
ABDOMINAL PAIN	3	5
LOOSE STOOLS	9	15
VOMITING	6	10
RASH OVER BODY	1	2

Fever was the most common presenting complaint, seen in 45 (75%) patients. Cough was a presenting complaint in 23 patients, which was the second most common presenting complaint. 7 patients complained of decreased activity and difficulty in breathing was present in 7 patients. Only 9 patients (15%) complained of paleness of skin at the time of presentation. Other common complaints were fatigue, swelling over body and decreased oral intake. 5 patients complained of pica and 3 patients complained of abdominal pain. Rash over body was there in one patient.

Table 2: Distribution of patients as per presenting signs

PRESENTING SIGNS	NO OF PATIENTS	PERCENTAGE
PALLOR	60	100
RESPIRATORY DISTRESS	7	12
PEDAL OEDEMA	9	15
FACIAL PUFFINESS	10	17
HYPERPIGMENTATION	7	12
ACRODERMATITIS	1	2
SIGNS OF VITAMIN DEFICIENCY	4	7
ICTERUS	10	17
HEPATOMEGALY	30	50
SPLEENOMEGALY	17	28
HEPATOSPLENOMEGALY	14	23
CARDIAC MURMUR	9	15
ADVENTITIOUS SOUNDS IN CHEST	26	43

Pallor was noted in all patients at the time of presentation. 7 patients had respiratory distress. 9 patients had pedal oedema, while 10 patients presented with facial puffiness. In 4 patients signs of vitamin deficiency were noted on general examination. Hyperpigmentation of skin was seen in 7 patients and icterus in 10 patients. Hepatomegaly was seen in 30 patients (50%) and splenomegaly in 17 patients (28%). Hepatosplenomegaly was seen in 14 patients (23%). 9 patients had a cardiac murmur on presentation and adventitious chest sounds were heard in 26 patients.

Discussion:

Anemia is major contributor to mortality and morbidity among under five year old children in India. The present study was undertaken to determine the clinical profile of severely anemic children aged 6 months to five years so as to aid in the prevention and management of this public health problem that plagues the Indian population. A total of 60 children aged 6 months to five years who presented to a tertiary care hospital with Hb < 7 gm% were enrolled in the study. Detailed history was obtained from the parents of all patients and a thorough examination and all necessary laboratory investigations were done in all cases.^{9,11}

Fever was the most common presenting complaint, seen in 45 (75%) patients. 23 patients complained of cough, which was the second most common presenting complaint. Decreased activity was a presenting complaint in 7 patients and difficulty in breathing in 7 patients. Only 9 patients (15 of %) complained of paleness of skin at the time of presentation. 16 patients (27%) complained of decreased oral intake, which was another common presenting complaint. Other common complaints were fatigue, loose stools, vomiting, swelling over body and rash over body. 5 patients complained of pica and 3 patients complained of abdominal pain. In the study by Saranappa and Wu most of the children with anemia were brought to the hospital with complaints for multiple organ systems and were incidentally found to have anemia.^[12] Similar findings were also noted in the study by Singh and Parihar where majority of the complaints commonly found in their study population were related to infectious diseases, gastrointestinal system and respiratory system.^[13]

Pallor was noted in all patients at the time of presentation. 7 patients had respiratory distress. 9 patients had pedal oedema, while 10 patients presented with facial puffiness. Hepatomegaly was seen in 30 patients (50%) and splenomegaly in 17 patients (28%). Hepatosplenomegaly was seen in 14 patients (23%). 9 patients had a cardiac murmur on presentation and adventitious chest sounds were heard in 26 patients. Janjale A et al noted that pallor was the most prominent and characteristic sign noted in 59 cases (100%) followed by pyrexia (66.10%), hepatomegaly (20.34%), hepatosplenomegaly (16.95%), edema, dyspnea, hemic murmur, icterus, nail changes, tachycardia, mental changes, CCF, cardiomegaly, frontal bossing, lymphadenopathy and bony tenderness in decreasing order of frequency. ^[14]

Conclusion:

Anemia is a preventable cause of significant morbidity in children under 5 years of age. Male and female children are equally susceptible to develop anemia. Children between 1-3 years are particularly susceptible to develop anemia. Nutritional anemias, Iron deficiency anemia in particular remain the leading cause of severe anemia in children between 6 months to five years of age. Exclusive breastfeeding for the initial 6 months of life, followed by introduction of appropriate complimentary feeds can significantly decrease the burden of anemia in the under 5 years age group.

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