

Prevalence of Anemia in Patients Presenting with Febrile Fits

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ABSTRACT

Objective: To determine the prevalence of iron deficiency anemia in children with febrile fits.

Study Design: Prospective study

Place and Duration of Study: Paediatric Medicine, Abbas Institute of Medical Sciences (AIMS) Muzafarabad, AJ Kashmir from 01-04-2021 to 31-03-2022.

Methodology: Ninety patients within the age limit of 6 months to 5 years were enrolled. The inclusion criteria were based on the all the children suffering from febrile fits. The enrolled patients' blood sample comprising of 4cc was pooled and sent for biochemical analysis of hemoglobin, serum ferritin as well as red cell distribution width. The results of each patients' reports were used for analysis of their anemia status.

Results: The mean age of the patients was 2.6±1.5 years with more boys suffering from febrile fits.. Most of the children belonged to the age group of 1-3 years. The biochemical blood analysis reports revealed that there were 56.25% those children who were suffering from hemoglobin level less than 10g/dl. The overall prevalence of iron deficiency anemia was found to be 33.75 among boys while 25% within the girls.

Conclusion: There is a percentage of iron deficiency anemia as 58.75% in children with febrile fit.

Key Words: Prevalence, Anemia, Febrile fits.

INTRODUCTION

Febrile fit is a term used for children under five years of age. Febrile fits have been a major pediatric challenge due to high prevalence rate found among young under five-year children. Clinically a febrile fit child presents 38°C temperature or greater than this without presence of cerebral infection or and metabolic disturbances.¹⁻² The period of fits is no more than 15 minutes in cases of simple febrile fit while complex febrile fits are >15 minute with reoccurring episodes. The simple febrile fit also termed as generalized tonic-clonic.³ Status-epilepticus has a seizure duration more than 30 minutes.⁴⁻⁵

There has been an immense awareness regarding the febrile fit within recent years. The complications rate in context with febrile fit/seizures has also been presented in high prevalence in recent years than previous years.⁶ In western countries its prevalence is from 2% to 5%⁷ while in Asian countries its prevalence is around 5% to 10%.⁸ Complication risks of Aspiration as well as psychological trauma are most frequent not only for the child but also for the parents.⁹

Iron deficiency anemia (IDA) is a prevailing condition especially of developing countries in which the mineral iron becomes deficient in the body. This mineral is required in hemoglobin synthesis as well as neurological process maintenance.¹¹⁻¹² The conditions in which a child is deficient of iron may result in poor growth, tiredness, poorly developed memory and mental lethargy. Such situations may lead to formation of febrile fit in IDA children.¹²⁻¹⁴ The present study was designed for analyzing the prevalence of IDA in children suffering from febrile fit. This study would assist in identifying the association between these two variables which would further benefit in proper management and treatment of a child suffering from febrile fits.

MATERIALS AND METHODS

This prospective study was conducted at Medicine, Abbas Institute of Medical Sciences/Medical College, Muzafarabad. Ninety patients within the age limit of 6 months to 5 years were enrolled. All the children suffering from febrile fits were included. However, those children who were having some severe growth retardation, mental illness were excluded. The patients' blood sample comprising of 4cc was pooled and sent for biochemical analysis of hemoglobin, serum ferritin as well as RCDW. The results of each

patients' reports were used for analysis of their anemia status. Hb less than 10g/dl, while RCWD greater than 16% and serum ferritin less than 7 ng/ml was taken as cut off for determining iron deficiency anemia in any pediatric case. The demographic details, gender, biochemical analytes result in addition to the clinical history and symptoms of each patients was documented on a standardized proforma. Data was analyzed by using SPSS version 26.0 where chi square test was applied for analyzing the results. P value <0.05 was taken as significant.

RESULTS

The mean age of the patients was 2.6±1.5 years with more boys than girls enrolled suffering from febrile fits. There were 62.5% boys in this study and 70% girls. Most of the children belonged to the age group of 1-3 years. Iron deficiency was more common in the similar age group with 65% children within 1-3 years suffering from febrile fits as well as iron deficiency anemia. There was a significant variance among children with or without iron deficiency anemia within the age group of 4-5 years (Table 1).

Table 1: Association of age with febrile fits and iron deficiency anemia

Age (years)	With Iron Deficiency		Without Iron Deficiency		P value
	No.	%	No.	%	
<1	9	11.25	7	8.75	0.12
1-3	28	35	24	30	0.45
4-5	10	12.5	2	2.5	<0.05
Total	47	58.75	33	41.25	<0.05

Table 2: Blood analysis of children with febrile fits.

Blood Analysis	No.	%
Hb Levels		
Less than 10 g/dl	45	56.25
Greater than 10g/dl	35	43.75
RCDW		
Less than 16%	34	42.5
Greater/equal than 16%	46	57.5
S. Ferritin		
Less/equal 7ng/ml	44	55
Greater 7ng/ml	36	45

The biochemical blood analysis reports revealed that there were 56.25% those children who were suffering from hemoglobin

level less than 10g/dl while 57.5% had red cell distribution width as $\geq 16\%$ (Table 2).

There was no clinical history of febrile fits among parents of each child. The overall prevalence of iron deficiency anemia was found to be 33.75 among boys while 25% within the girls with a total deficiency percentage as 58.75% which was significantly higher ($P < 0.05$) [Figure 1].

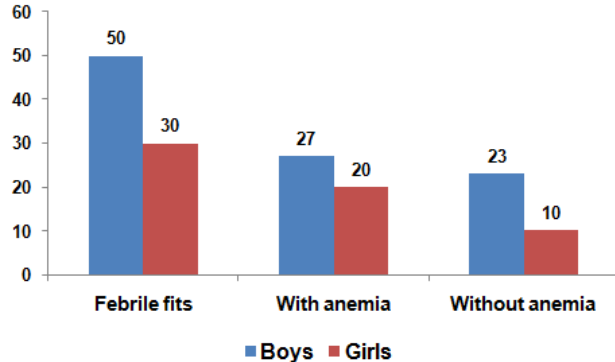


Figure 1: Prevalence of iron deficiency anemia in boys and girls with febrile fits

DISCUSSION

The present study was conducted for determining the prevalence of IDA in febrile fit children. The results of this study showed that 58.75% children suffering from febrile fit were also having IDA. This leads to an idea of strong association between the febrile fit and IDA among children under five years of age. The similar results have been quoted by another Pakistani study which determined a prevalence of IDA among febrile fit children up to 58.9%. The results were in accordance with current study findings.¹⁵

The association of febrile fit with male gender has been well documented in the previous literature as well as in the current research. Boys were associated with strong clinical history as well as higher number in reference to febrile fit formation.¹⁶⁻¹⁹

The mean age of this study was 2.6 ± 1.5 years. Various other studies have reported an age range of 1.5 years^{15,18} which is slightly less than the age recorded in present study. However the variance might be due to difference in clinical settings of various researchers with different set of pediatric population visiting. The mean hemoglobin level has been reported less than ten gram per deciliter from various other studies of Pakistan.^{15,21} The present study has also reported similar findings.

CONCLUSION

There is a strong association between febrile fits and iron deficiency anemia with a percentage of iron deficiency anemia as 58.75% in children with febrile fit.

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