



COMPLETE HEMOGRAM ASSESSMENT IN CHILDREN WITH SIMPLE FEBRILE SEIZURES ADMITTED TO TERTIARY CARE CENTRE

Paediatrics

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ABSTRACT

Introduction: Febrile seizures are seizures that occur in children between the ages of 6 months and 60 months, with body temperature of 38°C or higher not resulting from Central Nervous System (CNS) infection or any metabolic imbalance without any prior afebrile seizures. This condition occurs in 2-5% of the children who are neurologically healthy. Among many risk factors identified for febrile seizures, iron deficiency is hypothesized to be one of the risk factor for occurrence of febrile seizures. **Method:** After the institutional ethics committee clearance, retrospectively data is collected from the children admitted with simple febrile seizures. Data is collected during the study period from JAN 2023 to FEB 2023. Investigation reports such as CBC PERIPHERAL SMEAR IRON PROFILE are collected and interpreted by statistical analysis. **Results:** Out of 98 children included in the study, mean age of presentation was 18 months and 55 (56.1%) were males, 43 (43.9%) were females. Mean duration between fever onset and convulsions is 20 hours and mean body temperature at admission 38.52°c with standard deviation of 0.96. Mean HB of 9.44gm/dl with standard deviation of 1.028. mean MCV MCH AND MCHC values are 64.02fl ,26.06pg and 34.77 respectively. Mean serum iron 21.83mg/dl with standard deviation of 6.22. mean serum ferritin 71.2mcg/dl Mean TIBC and transferrin saturation 424.88mcg/dl and 281 with standard deviation of 84.99 and 40.292 respectively. Anemia was present in 92(93%) children among them 23(23.5%) children had mild anemia and 69 (70.4%) had moderate anemia according to WHO classification of iron deficiency anemia. **Conclusion:** From the current study we conclude that febrile seizures occurs most commonly during the period of 18 to 24 months. complete hemogram parameters which include HB MCV MCH MCHC SERUM IRON TIBC transferrin saturation and peripheral smear, studied in 98 children were significantly lower. Definitely anemia is associated with febrile seizures. iron deficiency anemia may be the one of the risk factor for febrile seizures.

KEYWORDS

Febrile Seizures, Anemia, Hemogram

INTRODUCTION

Febrile seizures as seizure occurring with febrile illnesses with fever more than 38.4 C (per rectal) with no previous history of febrile seizure or without acute systemic metabolic abnormality that may produce convulsions or nervous system infection in a neurologically normal children aged 6 months to 5 years¹.

The incidence of febrile convulsion is about 2-5% in neurologically healthy child.^{2,3} The exact cause of febrile convulsion is unknown but genetic and environmental factors have influence on its occurrence.⁴

Cerebrospinal fluid neurotransmitter abnormalities, a high level of neopterin in the CSF, and a family history of febrile seizures are all factors that might cause febrile seizures.⁵ Peak incidence of febrile seizures occurs between the ages of 14 and 18 months, coinciding with the more severe period of iron deficient anaemia from 6 to 24 months of age.⁶

iron is an essential element for metabolism with many enzymes depending on iron for its function. It is an important micronutrient which is used by almost all the cells in the body. It is also an important co factor for the several enzymes for their proper functions. Iron also has roles in production of neurotransmitters and their functions ,DNA duplication and several hormone functions.⁷

Iron deficiency anemia is the most common nutritional deficiency in the children. Iron deficiency leads to improper myelination and synthesis of tyrosine and tryptophan hydroxylase which are necessary for synthesis and release of neurotransmitters like serotonin, dopamine, GABA.⁸

Many studies are done to know the associated factors, to identify the risk factors for febrile seizures. In our study efforts are made to assess the complete hemogram and to study the anemia status in children with febrile seizures.

MATERIALS AND METHODS:

Source Of Data:

Vani Vilas hospital, Bangalore Medical College and Research Institute.

Method Of Collection Of Data:

Data is collected from the children who were admitted with simple febrile seizures

A. Design Of Study

Retrospective Study

B. Study Period:

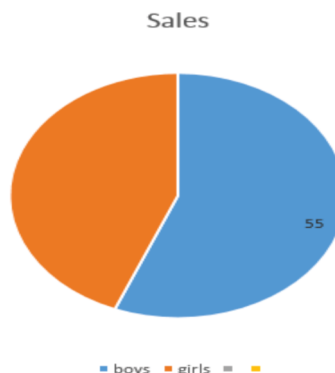
JAN 2023 – FEB 2023

C. Place of study:

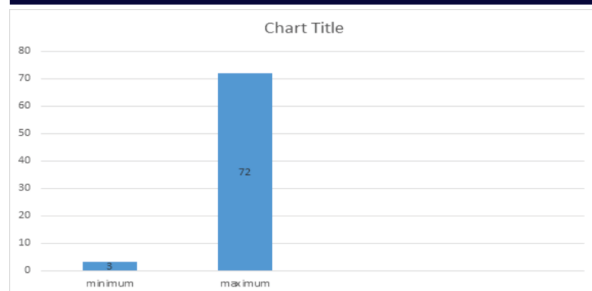
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RESULTS:

Out of 98 children included in the study, mean age of presentation is 18 months and 55 (56.1%) were males, 43 (43.9%) were females.



Mean duration between fever onset and convulsions is 20 hours and mean body temperature at admission 38.52°c with standard deviation of 0.96.



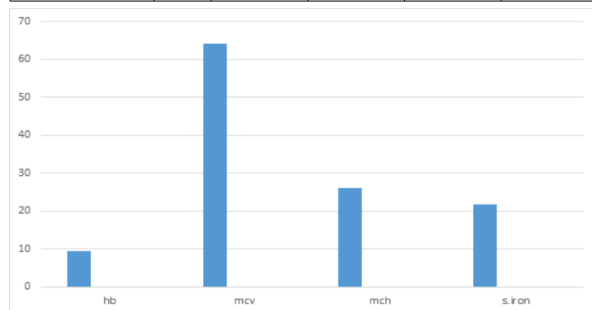
Mean HB of 9.44gm/dl with standard deviation of 1.028. mean MCV MCH AND MCHC values are 64.02fl ,26.06pg and 34.77 respectively.

Mean serum iron 21.83mg/dl with standard deviation of 6.22. mean serum ferritin 71.2mcg/dl

Mean TIBC and transferrin saturation 424.88mcg/dl and 281 with standard deviation of 84.99 and 40.292 respectively.

Anemia was present in 92(93%) children among them 23(23.5%) children had mild anemia and 69 (70.4%) had moderate anemia according to WHO classification of iron deficiency anemia.

	N	Minimum	Maximum	Mean	SD
Hb	98	6.9	12.8	9.44	1.028
PCV	98	20	38.9	28.57	4.005
MCV	98	38	84.5	64.02	9.121
MCH	98	14.1	36	26.06	4.956
MCHC	98	23	48	34.77	5.034
S.IRON	98	12	54	21.8	6.221
TIBC	98	243	566	424.88	84.99
S.transferrin	98	205	360	281.91	40.292



DISCUSSION:

The mean age of occurrence of febrile seizures in the present study was 18 months which was comparable to other studies such as Alfredo piscine et al found that mean age of febrile seizures was about 15 months. Separate studies done by Vasvani RK et al⁹, Waruiru C et al and Azhar Daoud et al also found that febrile seizures peaks at 18 months.

In the present study there was preponderance of male gender with ratio being 1:1.2. many studies have been conducted since long time which always showed male preponderance. In the present study red blood indices mean HB, MCV, MCH, MCHC was 9.44gm/dl ,64.02fl,26.06pg and 34.77 respectively which was significantly low. Kumari PL et al¹⁰, Naveed-ur-Rehman et al and Piscane et al had similar results.

In the present study mean serum iron value 21.8mg/dl which was significantly low. Piscane et al studied the serum iron level between 6-24 months of age, where level was low in febrile children

CONCLUSION:

From the current study we conclude that febrile seizures occurs most commonly during the period of 18 to 24 months. Complete hemogram parameters which include HB MCV MCH MCHC SERUM IRON TIBC transferrin saturation and peripheral smear, studied in 98 children were significantly lower.

Anemia was present in 92 children in our study, hence anemia is associated with febrile seizures. iron deficiency anemia may be the one of the risk factor for febrile seizures.

Screening for iron deficiency anemia should be considered in all children with febrile seizures.

Early detection and timely intervention of anemia may be of help for prevention/ recurrence febrile seizures in children of this age group.

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