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Original Research Article

Clinical, epidemiological and laboratory characteristics of children with febrile seizures

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ABSTRACT

Background: Febrile seizures are the most common seizure disorder in early childhood and represent a frequent cause of pediatric emergency visits. Understanding their clinical, epidemiological, and laboratory characteristics is essential for appropriate evaluation and management.

Methods: A hospital-based observational study was conducted from March 2024 to February 2026 at Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, after institutional ethics committee approval. Sixty-five children aged 6-60 months presenting with febrile seizures were enrolled. Children with afebrile seizures, central nervous system infections, congenital CNS malformations, or chronic illnesses were excluded. Demographic details, clinical characteristics, and laboratory parameters, including complete blood count, serum electrolytes, blood glucose, C-reactive protein, and urine examination, were recorded. Data were analyzed using descriptive statistics, Chi-square test, fisher's exact test, and independent t-test or Mann-Whitney U test as appropriate. Effect sizes were reported as Cramer's V for categorical associations, with 95% confidence intervals (CI). A p value of <0.05 was considered statistically significant. Statistical analysis was performed using IBM statistical package for the social sciences (SPSS) statistics version 26.0 (IBM Corp., Armonk, NY, USA). Normality of continuous variables was assessed using the Shapiro-Wilk test.

Results: The mean age was 25.02±14.75 months, with most children aged 24-35 months (22/65, 33.8%). Males constituted 41/65 (63.1%) of cases. Most children presented with fever of 100-101 F (30/65, 46.2%), and 56/65 (86.1%) developed seizures within two days of fever onset. A single convulsion occurred in 46/65 (70.8%) of children. Hematological evaluation showed mild anaemia (mean hemoglobin 10.64±1.58 g/dl), leukocytosis (mean total leukocyte count 12,684.86±5,463.75 cells/mm^3), and neutrophil predominance. Biochemical parameters were largely within normal limits except for mild hyponatremia (mean serum sodium 134.89±2.70 mEq/l). Urine abnormalities were detected in 11/65 (16.9%) of cases. Lower hemoglobin levels were significantly associated with multiple convulsions (Fisher's exact test, p=0.015, Cramer's V=0.368, 95% CI: 0.102-0.583).

Conclusions: In this study, febrile seizures predominantly occurred in neurologically normal children below three years of age and were usually associated with short-duration fever and single seizure episodes. Mild anaemia was common and was significantly associated with seizure recurrence, suggesting its potential role as a clinically relevant laboratory marker in children with febrile seizures.

Keywords: Febrile seizures, Pediatric seizures, Electrolytes, Calcium, Children, Acute febrile illness, Nutritional status

INTRODUCTION

Febrile seizures are convulsions that occur in association with fever in young children in the absence of central nervous system infection and metabolic abnormalities. The likelihood of experiencing a febrile seizure is greatest in the second year of life, with peak incidence typically

between 12 and 30 months old, which makes this period particularly critical for clinicians and caregivers alike.[1]

Febrile seizures are the most common seizure disorder in childhood, occurring in children between 6 months and 5 years of age in association with fever, without evidence of central nervous system infection, metabolic disturbances, or previous afebrile seizures.[1] They affect approximately 2-5% of children worldwide, although higher incidences have been reported in certain geographic regions. The peak occurrence is during the second year of life, reflecting the increased susceptibility of the immature brain to fever-induced neuronal excitability.[1,2] Based on clinical characteristics, febrile seizures are classified as simple or complex. Simple febrile seizures are generalized, last less than 15 minutes, and do not recur within 24 hours, whereas complex febrile seizures are prolonged, focal, or recurrent during the same febrile illness.[2] Although the prognosis is generally favorable, nearly one-third of affected children experience recurrent episodes, particularly those with younger age at onset, positive family history, or early seizure occurrence during febrile illness.[3]

The clinical presentation and epidemiological profile of febrile seizures vary across populations and are influenced by demographic, infectious, genetic, and environmental factors.[4,5] Fever-induced inflammatory cytokines, developmental immaturity of inhibitory neuronal pathways, and metabolic disturbances such as electrolyte abnormalities have been implicated in lowering the seizure threshold.[6-9] Laboratory evaluation, therefore, plays an important role in identifying underlying infections, excluding alternative etiologies, and recognizing associated biochemical abnormalities.

A comprehensive understanding of the clinical, epidemiological, and laboratory characteristics of children presenting with febrile seizures is essential for improving diagnostic evaluation, identifying factors associated with recurrence, and optimizing patient management. Therefore, the present study was undertaken to evaluate the clinical profile, epidemiological characteristics, and laboratory findings among children presenting with febrile seizures.

METHODS

The hospital based observational study was conducted at the Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, from March 2024 to February 2026 after receiving ethical approval from the institutional ethics committee. 65 children fulfilling the inclusion criteria were selected for the study.

Inclusion and exclusion criteria

Children in age group of 6 to 60 months presenting with febrile seizures, whose parents are willing to give consent were included.

Children with afebrile seizures, with signs of CNS infections, CNS malformations, chronic illness were excluded from the study.

Procedure

Written informed consent was obtained from the parents or legal guardians after explaining the nature and purpose of the study. A detailed history was obtained using a structured case record form, including demographic and epidemiological characteristics, family history of febrile seizures or epilepsy, immunization status, clinical presentation, seizure characteristics, and details of the febrile illness. A thorough general and systemic examination, including neurological assessment, was performed for all participants.

Relevant laboratory investigations, including complete blood count, urine routine examination, serum electrolytes, blood glucose, and other investigations indicated to identify the underlying cause of fever and exclude alternative causes of seizures, were carried out as per institutional protocol.

All clinical, epidemiological, and laboratory findings were systematically recorded in a predesigned proforma.

Data were entered into Microsoft excel and analyzed using IBM statistical package for the social sciences (SPSS) Statistics version 26.0 (IBM corp., Armonk, NY, USA). Descriptive statistics were used to summarize the study variables. Normality of continuous variables was assessed using the Shapiro-Wilk test. Continuous variables following normal distribution were expressed as mean +/- standard deviation (SD) and compared using the independent t-test, while non-normally distributed continuous variables were analyzed using the Mann-Whitney U test. Categorical variables were expressed as frequencies and percentages, and associations were analyzed using the Chi-square test or fisher's exact test, as appropriate. Fisher's exact test was used when expected cell frequencies were less than five. Effect sizes were calculated as Cramer's V for categorical associations and Cohen's d for continuous variable comparisons, with 95% confidence intervals (CI). A p value of <0.05 was considered statistically significant

Sample size estimation

$$Sample\ size = 4PQ/d^2$$

Sample size was calculated using the formula given, where: P=prevalence: 13.5% (based on the previous literature by Singh et al, March 2019 that the prevalence of febrile seizures in India), Q=1-prevalence, and d=precision error: 10%.

$$Sample\ size = 4 \times 0.13 \times 0.87/0.1 \times 0.1 = 45.24$$

The value was rounded off to 50. To account for potential incomplete data or loss to follow-up, the sample size was increased to 65 children.

RESULTS

The baseline demographic and epidemiological characteristics of the study participants are presented in Table 1. The study included 65 children with a mean age of 25.02±14.75 months, with the highest proportion belonging to the 24-35 months (22/65, 33.8%) age group. Males predominated (41/65, 63.1%). Most children had normal nutritional status (39/65, 60.0%), while 26/65 (40.0%) exhibited varying degrees of undernutrition. All participants were appropriately immunized and demonstrated normal developmental status. A previous history of febrile seizures was uncommon (1/65, 1.5%), indicating that the majority presented with a first episode.

Table 1: Baseline demographic and epidemiological characteristics of children with febrile seizures (n=65).

Variables	Category	N (%)
Age (months)	6-11	9 (13.8)
	12-23	19 (29.2)
	24-35	22 (33.8)
	36-47	4 (6.2)
	48-60	11 (16.9)
	Mean±SD	25.02±14.75
Gender	Male	41 (63.1)
	Female	24 (36.9)
Nutritional status (IAP classification)	Normal	39 (60.0)
	Grade I undernutrition	16 (24.6)
	Grade II undernutrition	8 (12.3)
	Grade III/IV undernutrition	2 (3.1)
Immunization status	Age-appropriate	65 (100.0)
Developmental status	Normal	65 (100.0)
Past history of febrile seizure/ epilepsy	Absent	64 (98.5)
	Present	1 (1.5)

The clinical characteristics of the study participants are presented in Table 2. Most children presented with moderate-grade fever (100-101 F, 30/65, 46.2%), and seizures occurred early in the course of illness, with 56/65 (86.1%) developing convulsions within the first two days of fever.

The majority experienced a single seizure episode (46/65, 70.8%), while recurrent seizures during the same illness were less common. A previous history of febrile seizures was uncommon (1/65, 1.5%), indicating that most children presented with their first febrile seizure episode.

Table 2: Clinical characteristics of children with febrile seizures (n=65).

Variables	Category	N (%)
Temperature at presentation (°F)	99-100	17 (26.2)
	100-101	30 (46.2)
	>101	18 (27.7)
	Mean±SD	100.72±0.80
Duration of fever before seizure (days)	1	29 (44.6)
	2	27 (41.5)
	3	6 (9.2)
	≥4	3 (4.6)
	Mean±SD	1.76±0.93
Number of convulsions during illness	One episode	46 (70.8)
	Two episodes	18 (27.7)
	Four episodes	1 (1.5)
	Mean±SD	1.47±0.45
Previous febrile seizure	Absent	64 (98.5)
	Present	1 (1.5)

Table 3: Hematological profile of children with febrile seizures (n=65).

Variables	Mean	Std. Deviation
Hemoglobin (g%)	10.64	1.58
Total leukocyte count (cells/mm³)	12684.86	5463.75
PCV (%)	34.15	4.25
Platelets (lakh/mm³)	3.36	1.03
ESR (mm/h)	9.61	9.65
Cell type		
Neutrophils (N)	64.37	14.08
Lymphocytes (L)	28.83	13.95
Monocytes (M)	5	2.11
Eosinophils (E)	2.05	1.91

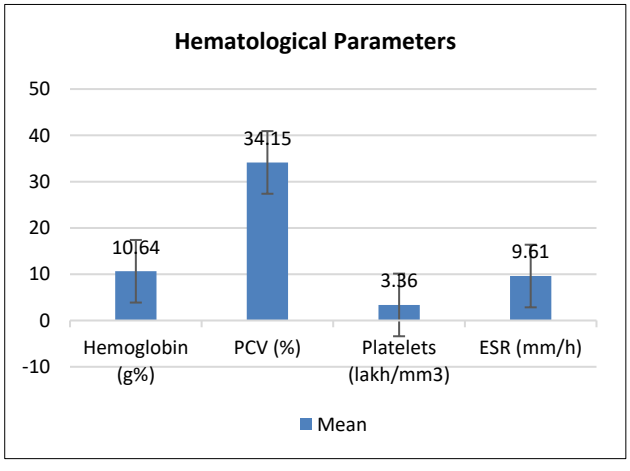

Figure 1: Hematological parameters.

The hematological profile of the study participants is presented in Table 3. Hematological analysis demonstrated a mean hemoglobin level of 10.64±1.58 g/dl, suggesting mild anemia in the cohort. The mean total

leukocyte count was elevated (12,684.86±5,463.75 cells/mm3). PCV averaged 34.15±4.25%, and platelet count was within normal range at 3.36±1.03 lakh/mm^3. ESR showed wide variability (9.61±9.65 mm/hour). Differential leukocyte count revealed neutrophil predominance (64.37±14.08%) with relatively lower lymphocyte percentage (28.83±13.95%), supporting an acute inflammatory or infectious process.

Table 4: Biochemical profile of children with febrile seizures (n=65).

Parameters	Mean±SD/N (%)
Random blood glucose (mg/dl)	92.27±19.07
Serum sodium (mEq/l)	134.89±2.70
Serum potassium (mEq/l)	4.36±0.45
Serum chloride (mEq/l)	102.11±2.95
Serum calcium (mg/dl)	9.06±0.59
C-reactive protein (mg/dl)	1.45±2.70
Serum vitamin D (ng/ml)	16.41±6.58
Urine routine examination	
Normal	54 (83.1)
Patients with pus cells in urine	11 (16.9)

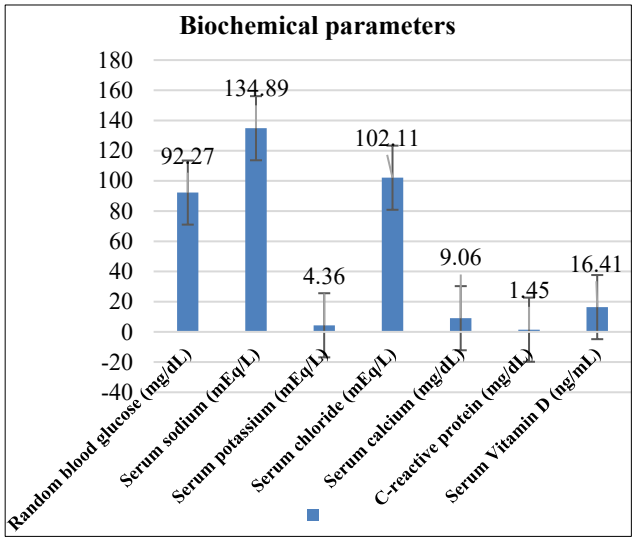

Figure 2: Biochemical parameters.

The biochemical profile of the study participants is presented in Table 4. The biochemical evaluation demonstrated largely preserved metabolic homeostasis among children with febrile seizures. Mean random blood glucose and serum potassium, chloride, and calcium concentrations were within normal physiological limits. A mildly reduced mean serum sodium level (134.89±2.70 mEq/l) suggested the presence of mild hyponatremia in some children, which may contribute to increased neuronal excitability during febrile illness. The mean CRP level (1.45±2.70 mg/dl) reflected an underlying inflammatory response consistent with acute infection. Urine routine examination was normal in the majority (54/65, 83.1%) of participants, while abnormal findings were observed in 11/65 (16.9%), indicating that urinary tract infection or other urinary abnormalities constituted a minority of the underlying febrile illnesses. Overall, the biochemical profile suggests that significant metabolic derangements were uncommon in this cohort of children with febrile seizures.

The association between hemoglobin levels and the number of convulsions is presented in Table 5. A statistically significant association was observed between haemoglobin levels and number of convulsions (fisher's exact test, Chi-square=10.42, df=4, p=0.015, Cramer's V=0.368, 95% CI: 0.102-0.583). Children with lower haemoglobin levels (6-9.9 g/dl) had a higher proportion of multiple convulsions, whereas those with normal haemoglobin levels (≥11 g/dl) predominantly experienced a single convulsion. This suggests that anemia may be associated with increased frequency of convulsive episodes.

Table 5: Association between number of convulsions and haemoglobin levels (n=65).

No. of convul-sions	≥11 g/dl, N (%)	10–10.9 g/dl, N (%)	6–9.9 g/dl, N (%)	Total, N (%)
1	25 (86.2)	10 (90.9)	11 (44.0)	46 (70.8)
2	4 (13.8)	1 (9.1)	13 (52.0)	18 (27.7)
4	0 (0.0)	0 (0.0)	1 (4.0)	1 (1.5)
Total	29 (44.6)	11 (16.9)	25 (38.5)	65 (100)

Fisher's exact test: Chi-square=10.42, df=4, p=0.015, Cramer's V=0.368 (95% CI: 0.102-0.583)

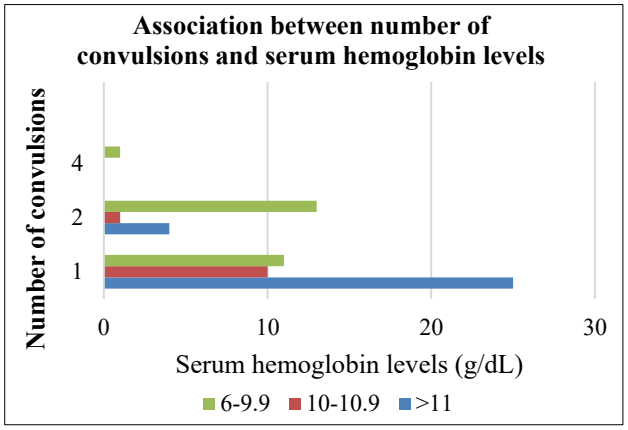

Figure 3: Association between number of convulsions and serum haemoglobin levels.

DISCUSSION

The present study was undertaken to evaluate the clinical, epidemiological, and laboratory characteristics of children presenting with febrile seizures. The study assessed the demographic profile, clinical presentation, hematological and biochemical parameters, and associated laboratory abnormalities in affected children. In addition, the relationship between selected laboratory parameters and seizure characteristics was analyzed to identify factors

associated with seizure recurrence during the same febrile illness.

The present study demonstrated that febrile seizures occurred predominantly in children aged 1-3 years, with the highest proportion observed in the 24-35 months age group, confirming that early childhood represents the period of greatest susceptibility to febrile seizures. This finding is consistent with studies by Heydarian et al and Bharti et al, who also reported peak occurrence during the second and third years of life.[9,11] A distinct male predominance was observed, similar to the findings of Hossain et al, Singh et al, Zhang et al, and Thoppil et al, suggesting that boys are slightly more susceptible to febrile seizures than girls.[12-15] All children in the present study had age-appropriate immunization and normal developmental status, while previous febrile seizures were uncommon, indicating that febrile seizures predominantly affected neurologically normal children. Similar observations have been reported by Bhat et al and Mohammadi et al.[16,17]

Most children presented with moderate-grade fever (100-101°F), and seizures occurred within the first two days of illness, supporting the concept that febrile seizures are triggered by the rapid rise in body temperature rather than prolonged fever. Abbasi et al similarly reported that fever acts as the principal precipitating factor in biologically susceptible children.[18] Approximately 70% of children experienced a single convulsive episode, indicating that simple febrile seizures constituted the majority of cases.

The hematological profile demonstrated mild anaemia with elevated total leukocyte counts and neutrophil predominance, consistent with an acute infectious process. More than half of the children were anaemic, with moderate anaemia being the predominant category. Similar observations have been reported by Namakin et al, who suggested that deficiencies of iron and other micronutrients may reduce seizure threshold by altering neuronal excitability.[19] Importantly, the present study demonstrated a significant association between hemoglobin level and the number of convulsions ($p=0.015$), with children having lower hemoglobin levels experiencing multiple convulsive episodes more frequently than those with normal hemoglobin concentrations. These findings suggest that anaemia may contribute to increased seizure susceptibility during febrile illnesses. This mechanistic link is biologically plausible. Iron is a required cofactor for enzymes involved in dopaminergic, serotonergic, and GABAergic neuro-transmission, and iron deficiency has been proposed to lower the seizure threshold through this pathway.[20] The recurrence pattern seen in the present cohort is consistent with a recent large case-control study, which also found that recurrent febrile seizures were associated with a lower mean red cell count.[20] This suggests that haematological indices are a reproducible correlate of seizure frequency, rather than a chance finding specific to this cohort. A 2023 systematic review and meta-analysis of 20 case-control studies estimated the risk associated with iron-deficiency anaemia and poor iron indices at an odds ratio of 1.24-1.59.[21] The effect size in the present study (Cramer's $V=0.368$) falls within this range, supporting the association across different populations. However, causal inference is limited by the observational, cross-sectional design used here. A recent case-control study published in the same target journal has proposed routine haematological screening for iron-deficiency anaemia in febrile children to prevent seizure recurrence.[22]

Biochemical evaluation revealed that random blood glucose, serum potassium, chloride, calcium, and inflammatory markers were largely within normal limits, while the mean serum sodium level indicated mild hyponatremia. Urine abnormalities were identified in a small proportion of children, suggesting urinary tract infection as a potential source of fever in some cases. Overall, significant metabolic abnormalities were uncommon, and the laboratory findings primarily reflected the underlying infectious illness rather than severe biochemical disturbances. These observations are consistent with previous reports that laboratory investigations in febrile seizures mainly assist in identifying the etiology of fever and excluding alternative causes of seizures rather than establishing the diagnosis itself.[18]

Overall, the present study demonstrates that febrile seizures predominantly affect neurologically normal young children, are usually associated with short-duration moderate fever and a single convulsive episode, and are characterized by mild hematological and biochemical abnormalities. Among the evaluated laboratory parameters, anaemia emerged as the only factor significantly associated with seizure recurrence during the same febrile illness, highlighting its potential clinical relevance in children presenting with febrile seizures.

Limitations

The present study has certain limitations that should be considered while interpreting the findings. First, the study was conducted in a relatively small sample of 65 children, which may limit the generalizability of the results to larger pediatric populations. Second, the absence of a control group of febrile children without seizures restricts the ability to establish whether the observed prevalence of vitamin D deficiency and anemia was uniquely higher among febrile seizure patients compared to febrile children in general. Third, although associations were identified between vitamin D status and number of convulsions and between hemoglobin level and seizure frequency, the observational nature of the study does not permit causal inference. Fourth, detailed assessment of other potentially relevant micronutrients such as zinc, iron studies, magnesium, or vitamin B complex was not performed, which limits the broader nutritional interpretation of febrile seizure susceptibility. Fifth, urine culture was not performed in all children and all available cultures were

negative, creating some uncertainty regarding microbiological confirmation of urinary tract infection despite its high clinical attribution. Sixth, seasonal variation, dietary intake, sunlight exposure, and socioeconomic factors influencing vitamin D levels were not assessed. Finally, long-term follow-up for future febrile seizure recurrence was not included, which limits understanding of the prognostic impact of vitamin D deficiency beyond the acute illness period.

CONCLUSION

In this study of 65 children with febrile seizures, the condition predominantly affected children below three years of age (55/65, 84.6%) and was more common in males (41/65, 63.1%). Most episodes occurred early during febrile illness (56/65, 86.1% within two days) and presented as single seizure events (46/65, 70.8%). Laboratory evaluation demonstrated mild anemia (mean hemoglobin 10.64±1.58 g/dl) and leukocytosis (mean total leukocyte count 12,684.86±5,463.75 cells/mm^3), while serum electrolyte levels remained largely within normal limits except for mild hyponatremia (mean serum sodium 134.89±2.70 mEq/l). A statistically significant association was observed between lower hemoglobin levels and multiple convulsions (Fisher's exact test, p=0.015). These findings provide an overview of the clinical, epidemiological, and laboratory profile of children presenting with febrile seizures at our institution.

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REFERENCES

1. Corsello A, Marangoni MB, Macchi M. Febrile Seizures: A Systematic Review of Different Guidelines. Pediatr Neurol. 2024;155:141-8.
2. Xixis KL, Samanta D, Smith T, Keenaghan M. Febrile Seizure. 2024 Jan 19. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2026.
3. Leung AK, Hon KL, Leung TN. Febrile seizures: an overview. Drugs Context. 2018;7:212536.
4. Rahman MZ, Salim AFM, Ghosh NK, Sultana A. Patterns of febrile seizures: analysing seasonal, diurnal and socioeconomic correlations in Bangladesh. Int J Contemp Pediatr. 2025;12(2):159-64.
5. El-Radhi AS. Fever in Common Infectious Diseases. Clinical Manual of Fever in Children. 2019;2:85-140.
6. Mosili P, Maikoo S, Mabandla MV, Qulu L. The Pathogenesis of Fever-Induced Febrile Seizures and Its Current State. Neurosci Insights. 2020;15:2633105520956973.
7. Ben-Ari Y, Khalilov I, Kahle KT, Cherubini E. The GABA excitatory/inhibitory shift in brain maturation and neurological disorders. Neuroscientist. 2012;18(5):467-86.
8. Sawires R, Buttery J, Fahey M. A Review of Febrile Seizures: Recent Advances in Understanding of Febrile Seizure Pathophysiology and Commonly Implicated Viral Triggers. Front Pediatr. 2022;9:801321.
9. Chen R, Li S, Wang X, Zhou J, Lu Y, Kang AJTP. Analysis of cytokines and trace elements in children with febrile seizures. Transl Pediatr. 2020;9(6):809-17.
10. Heydarian F, Bakhtiari E, Golmakani H, Fakhr Ghasemi N, Heidarian M. Serum Level of Vitamin D and Febrile Seizure? A Clinical Study. Iran J Child Neurol. 2020;14(3):77-82.
11. Bharti A, Banotra P, Sharma SD, Digra S. Role of serum calcium, magnesium, phosphorus, and vitamin D in children with febrile seizures: a case-control study. J Chem Health Risks. 2026;16(1):2171.
12. Adnan MA, Hossain MI, Khanam W, Adnan MA, Mawa J, Ahmed I, Mondol MTI. Association of serum vitamin D levels and simple febrile seizures in children. Int J Contemp Pediatr. 2023;10:266-71.
13. Singh V, Sharma P, Dewan D. Association of vitamin D levels with simple febrile seizures in under five children: a case control study. Int J Contemp Pediatr. 2019;6(2):365-8.
14. Zhang L, Lin X, Liu B, Liu Q. Clinical characteristics and serum 25-hydroxyvitamin D levels in children with febrile seizures in China. Sci Rep. 2024;14(1):23330.
15. Thoppil J, Jyothirmayi C, Arockiyaraj M, Mathew L, Rebekkah G. Mathai SJ. Is vitamin D deficiency a risk factor in the occurrence and recurrence of febrile convulsions in children. Int J Contemp Pediatr. 2024;11(10):1424-9.
16. Bhat JA, Bhat TA, Sheikh SA, Wani ZA, Ara RJAJoM. Status of 25-hydroxy vitamin D level in simple febrile seizures and its correlation with recurrence of seizures. Avicenna J Med. 2020;10(1):6-9.
17. Ohammadi M, Baleghi Y, Salehiomran M, Hajiahmadi M, Poornasrollah M, Alijanpour P, et al. Evaluation of Vitamin D Level in Children With Febrile Seizure Referred to Amirkola Children's Hospital, Babol. Glob Pediatr Health. 2023;10:2333794X231198390.
18. Abbasi E, Ghazavi A, Farahmand H. Comparative study of serum vitamin D levels in patients with febrile seizures and febrile illnesses referred to

Motahhari Hospital in Urmia. Stud Med Sci. 2021;10:715-22.
19. Namakin K, Zardast M, Sharifzadeh G, Bidar T, Zargarian S. Serum Trace Elements in Febrile Seizure: A Case-Control Study. Iran J Child Neurol. 2016;10(3):57-60.
20. Sankar H, Shriram V, Elayaraja S. An analysis on role of iron deficiency in febrile seizure among children in 6 months to 5 years: a case-control study. J Family Med Prim Care. 2024;13:5562-9.
21. Sulviani R, Kamarullah W, Dermawan S, Susanto H. Anemia and Poor Iron Indices Are Associated With Susceptibility to Febrile Seizures in Children: A Systematic Review and Meta-analysis. J Child Neurol. 2023;38(3-4):186-97.
22. Iram A, Malagi N, Khanum S, Saher H. Association between iron deficiency anaemia and febrile seizures in children aged 1-5 years: a case-control study. Int J Contemp Pediatr. 2026;13:1704-9.

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