



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.3605471>

Available online at: <http://www.iajps.com>

Research Article

EVALUATION AND MANAGEMENT OF FEBRILE CONVULSIONS IN EMERGENCY DEPARTMENT

Ahmed Ali Almeshari¹, Abdullah Abdulmohsen Almulhim², Emad Aati Almuqati³, Amer Ayman Altalib⁴, Abdulmajed Abdulrahman Alramih⁵, Ahmed Faisal Alkhalil⁶, Abdullah Saud Al-Thani⁷, Rinad Fahad Ergsous⁸, Nawar Abdullah Alzneidi⁹, Abdulrahman Jalwi M. Korkoman¹⁰, Sumayah Hamza Banaji¹¹

¹Resident, Dammam Medical Complex, Dammam, ²Resident king fahad hospital alahsa, ³Medical Intern, Umm Al_Qura University, Makkah, ⁴Medical Intern, Imam Abdulrahman bin Faisal University, Dammam, ⁵Medical Intern, Dar Al Uloom University, Riyadh, ⁶Resident, king Fahad Hospital Hofuf, ⁷Medical intern, king Faisal university, Alahsa, ⁸Medical Intern, Umm Al_Qura University, Makkah, ⁹Medical Intern, King Saud bin Abdulaziz University for Health Sciences, Riyadh, ¹⁰Medical intern, king Khaled University, Abha, ¹¹Medical intern, Taibah university, Madinah.

Article Received: November 2019 **Accepted:** December 2019 **Published:** January 2020

Abstract:

Background: Febrile seizures are commonly characterized as seizures or convulsions happening in youngsters regularly from 6 months to 6 years old that is associated with fever more prominent than 38°C.

Objective: This study aimed at assessing the evaluation and management of febrile convulsions in emergency department.

Methods: The online database was searched then the articles were evaluated then all the eligible English studies during the last 12 years regarding the evaluation and proper treatment of febrile seizures were included in the study.

Results: The search resulted in 23 studies during the period from 2008 to 2020.

Conclusion: The prognosis is excellent among most of the children but only few may develop some long-term outcomes. The diagnosis is important to exclude intracranial infections especially after the complex type. Management can be done in two steps the first is to control the symptoms and the second is treatment of fever. Emergency doctors should have good knowledge about the proper and important diagnostic factors and the appropriate management to the abuse of diagnostic tests and treatments used for febrile convulsions.

Keywords: *Diagnosis, Management, Febrile convulsions, Emergency Department.*

Corresponding author:

Ahmed Ali Almeshari,
Resident, Dammam Medical Complex, Dammam.

QR code



Please cite this article in press Ahmed Ali Almeshari et al., *Evaluation And Management Of Febrile Convulsions In Emergency Department.*, Indo Am. J. P. Sci, 2020; 07[01].

INTRODUCTION:

Febrile seizures are commonly characterized as seizures or convulsions happening in youngsters regularly from 6 months to 6 years old that is associated with fever more prominent than 38°C with no proof of an intracranial reason as infectious diseases, head injury, or epilepsy, another determinable reason for seizure including electrolyte irregularity, hypoglycemia, tranquilize use, or medication withdrawal], or a past history of afebrile seizure[1].

Recently, there is extreme mindfulness about the potential inconveniences of febrile convulsions and the treatment and evaluation of this disorder. New guidelines for the assessment and the board of febrile convulsion were distributed by the American Academy of Pediatrics [AAP] and the Japanese Society of Child Neurology[2, 3].

The definite reasons for febrile convulsions are as yet obscure, however a few investigations showed a potential relationship with natural and hereditary components [4]]. Fever is an ordinary reaction to infectious diseases, and the arrival of significant levels of cytokines during a fever may adjust typical activity of the brain and activating convulsions. As exhibited, the hazard factors for FS are male sex, ancestry history of FS, a raised pinnacle internal heat level, certain fundamental reasons for the fever, immature birth and natal entanglements, low serum calcium, sodium or glucose, anemia, and iron and zinc inadequacies[5, 6].

Febrile seizure is a significant test in pediatric and emergency practice in view of its high occurrence in youngsters and its inclination to repeat[7]. This article provides an update on current evaluation and management of febrile convulsions in emergency department.

METHOD:

The online database was searched using suitable key words including emergency, diagnosis, Febrile, convulsions and management then the articles were evaluated then all the eligible English studies during the last ten years regarding the evaluation and proper treatment of febrile seizures were included in the present study.

RESULTS:

The first search resulted in 47 studies, then only English, literate reviews, meta-analysis and prospective studies conducted during the last 12 years and answer the review questions regarding the proper diagnosis and management of febrile convulsions. Only 23

articles were included in this review that were published between 2008-2020. Older studies will be included if there's no new studies to support the studies.

DISCUSSION:

Febrile convulsions [FS] as a rule happen when the temperature of children is higher than 38 °C, in spite of the fact that kids may create seizures anytime during a febrile infection and may just build up a fever after their seizure. Ordinary signs and manifestations of FS incorporate lost cognizance, trouble breathing, whiteness or turning blue, frothing at the mouth, eyes moving to the rear of the head, a fixed look, summed up or central jerking, and jolting of the legs and arms. After the convulsion, kids might be bad tempered, confounded or languid however will totally recuperate after roughly 30 min [8-11].

There are two primary kinds of febrile convulsions: basic or simple FS, which represents 70% of all FS cases and for the most part have no long-haul neuro-formative outcomes, and is characterized by summed up tonic-clonic seizures without central highlights, seizures last under ten minutes, seizures immediately reveal and isn't repeated during 24 hours. The second type is complex FS and characterized by central highlights in which just one side of the body is included, seizures keep going for over ten minutes, at least two seizures happen inside 24 h and full recuperation isn't seen following 60 minutes thus may need anticonvulsive drugs. Febrile Status Epilepticus [SE] is characterized as a FS that keeps going in excess of 20 min and for the most part requires using anticonvulsants to interfere with it[12].

After reviewing the studies, 23 studies which provided data about the evaluation and management of FS were included in this review.

The results suggest that laboratory studies are routinely performed. Also, improving the management of FS can be done by directing efforts toward finding the source of the fever and away from the laboratory workup.

Evaluation of febrile convulsions:**History taking and examination:**

History taking of the type of seizures, timing and frequency is important to differentiate between the 2 main types of FS and examination of the fever and its cause is important for proper treatment.

Investigations:

During the simple type of FS, laboratory investigations, lumbar puncture [LP], imaging and

electroencephalogram [EEG] are not required or recommended. However, in complex cases and other complicated cases they are important to determine the cause and effect of FS[13, 14].

1. Full blood count and serum biochemistry: they are considered during complex or prolonged convulsions to assess the cause of febrile disease and exclude electrolyte abnormality.
2. Lumbar puncture [LP]: can be recommended if there is a suspect of meningitis, CNS infection, CNS abnormalities or encephalitis among children with prolonged convulsions.
3. EEG: can be considered after specialist recommendations.
4. Neuroimaging: according to specialist advice during persistent focal neurology for recurrent and complex febrile convulsions.

Management of febrile convulsions:

Intercession to stop the convulsions for the most part is superfluous as the seizure has ordinarily settled when the kid is assessed by a doctor. Then again, treatment ought to be started if the seizure is as yet continuous when the children arrive to the hospital. Thus, the child can be treated with intravenous lorazepam or diazepam which is productive in ending the seizure[15-17].

During febrile status epilepticus, the convulsions rarely reveal using one epileptic drug and frequently requires more than one antiepileptic drug to control[18]. The underlying treatment comprises of intravenous organization of lorazepam or diazepam. If the seizures proceed following 5 minutes, the portion of lorazepam or diazepam can be rehashed intravenously[6, 7].

If the convulsions proceed for 10–15 minutes, fosphenytoin can be used at a portion of 20 mg phenytoin reciprocals/kg or phenobarbital at a portion of 20 mg/kg intravenously. If the seizures continue, an extra portion of fosphenytoin can be allowed intravenously 10 minutes after the stacking portion. The other alternative is to give intravenous phenobarbital, valproic acid, or levetiracetam.

Essential signs including temperature, pulse, rate of respiration, and circulatory pressure ought to be checked during the convulsion[19, 20]. Children admitted to the emergency department ought to be observed with ceaseless heartbeat oximetry. Hypoxic kids ought to be given oxygen through a nasal cannulae, face veil, or high-stream conveyance gadget. Expulsion of unreasonable garments and covers may decrease the fever. An antipyretic can be used if the fever is sufficiently high to cause

uneasiness to the child. Standardization of the internal heat level probably won't forestall further febrile seizures, the utilization of an antipyretic may make the kid more comfortable[19]. Obviously, the reason for the fever ought to be dealt with at whatever point conceivable.

Most of cases with febrile seizures don't need hospitalization. They can be released home once they have come back to their normal condition and made a decision to be well after parental instruction. Hospital affirmation ought to be considered to those who are suspicious to have a genuine contamination and those with delayed and additionally central seizures, particularly if there is postponed recuperation to benchmark or lingering neurological symptoms [21].

The condition has an excellent prognosis and is normally considerate and self-limiting [21]. Typically, kids exceed the condition by 6 years old. Only about 33% of cases who have had a febrile seizure will have a repeat during early youth[12]. The danger factors for repeats of febrile seizures incorporate time of beginning <15 months, moderately lower temperature at the hour of the main febrile seizure, shorter interim between the beginning of fever and the underlying seizure, febrile seizure and epilepsy in a first-degree relative, and neurodevelopmental delay[22]. Most of kids with basic febrile seizures have typical development and growth [23].

CONCLUSION:

Febrile convulsions are the most frequent type of seizures among kids. The prognosis is excellent among most of the children but only few may develop some long-term outcomes. The diagnosis is important to exclude intracranial infections especially after the complex type. Management can be done in two steps the first is to control the symptoms and the second is treatment of fever. Emergency doctors should have good knowledge about the proper and important diagnostic factors and the appropriate management to the abuse of diagnostic tests and treatments used for febrile convulsions.

REFERENCES:

1. Leung AK. Common Problems in Ambulatory Pediatrics: Nova Science; 2012.
2. Natsume J, Hamano SI, Iyoda K, Kanemura H, Kubota M, Mimaki M, et al. New guidelines for management of febrile seizures in Japan. *Brain & development*. 2017;39[1]:2-9.
3. Neurodiagnostic evaluation of the child with a simple febrile seizure. *Pediatrics*. 2011;127[2]:389-94.

4. Chung S. Febrile seizures. Korean journal of pediatrics. 2014;57[9]:384-95.
5. Waqar Rabbani M, Ali I, Zahid Latif H, Basit A, Rabbani MA. Serum Zinc Level in Children Presenting with Febrile Seizures. Pakistan journal of medical sciences. 2013;29[4]:1008-11.
6. Laino D, Mencaroni E, Esposito S. Management of Pediatric Febrile Seizures. International journal of environmental research and public health. 2018;15[10].
7. Carapetian S, Hageman J, Lyons E, Leonard D, Janies K, Kelley K, et al. Emergency Department Evaluation and Management of Children With Simple Febrile Seizures. Clinical pediatrics. 2015;54[10]:992-8.
8. Paul SP, Blaikley S, Chinthapalli R. Clinical update: febrile convulsion in childhood. Community practitioner : the journal of the Community Practitioners' & Health Visitors' Association. 2012;85[7]:36-8.
9. Nursing RCo. Caring for Children with Fever: RCN Good Practice Guidance for Nurses Working with Infants, Children and Young People: RCN; 2008.
10. Davis TJAoDiC-E, Practice. NICE guideline: feverish illness in children—assessment and initial management in children younger than 5 years. 2013;98[6]:232-5.
11. Women's NCCf, Health Cs. Feverish illness in children: assessment and initial management in children younger than 5 years. 2013.
12. Patel N, Ram D, Swiderska N, Mewasingh LD, Newton RW, Offringa M. Febrile seizures. BMJ [Clinical research ed]. 2015;351:h4240.
13. Smith DK, Sadler KP, Benedum M. Febrile Seizures: Risks, Evaluation, and Prognosis. American family physician. 2019;99[7]:445-50.
14. Mohammadi M. Febrile seizures: four steps algorithmic clinical approach. Iran J Pediatr. 2010;20[1]:5-15.
15. Kimia AA, Bachur RG, Torres A, Harper MB. Febrile seizures: emergency medicine perspective. Current opinion in pediatrics. 2015;27[3]:292-7.
16. Wilmshurst JM, Gaillard WD, Vinayan KP, Tsuchida TN, Plouin P, Van Bogaert P, et al. Summary of recommendations for the management of infantile seizures: Task Force Report for the ILAE Commission of Pediatrics. Epilepsia. 2015;56[8]:1185-97.
17. Chamberlain JM, Okada P, Holsti M, Mahajan P, Brown KM, Vance C, et al. Lorazepam vs diazepam for pediatric status epilepticus: a randomized clinical trial. Jama. 2014;311[16]:1652-60.
18. Seinfeld S, Shinnar S, Sun S, Hesdorffer DC, Deng X, Shinnar RC, et al. Emergency management of febrile status epilepticus: results of the FEBSTAT study. Epilepsia. 2014;55[3]:388-95.
19. Capovilla G, Mastrangelo M, Romeo A, Vigevano F. Recommendations for the management of "febrile seizures": Ad Hoc Task Force of LICE Guidelines Commission. Epilepsia. 2009;50 Suppl 1:2-6.
20. Graves RC, Oehler K, Tingle LE. Febrile seizures: risks, evaluation, and prognosis. American family physician. 2012;85[2]:149-53.
21. Paul SP, Kirkham EN, Shirt B. Recognition and management of febrile convulsion in children. Nursing standard [Royal College of Nursing [Great Britain] : 1987]. 2015;29[52]:36-43.
22. Patterson JL, Carapetian SA, Hageman JR, Kelley KR. Febrile seizures. Pediatric annals. 2013;42[12]:249-54.
23. Syndi Seinfeld D, Pellock JM. Recent Research on Febrile Seizures: A Review. Journal of neurology & neurophysiology. 2013;4[165].