

Evaluation of Febrile Seizures in NGMC And Assessment of Risk Factors For Recurrences

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ABSTRACT

Background: Febrile seizures (FS) are commonly confronted pediatric emergencies in the age group of 6 months to five years. Recurrences of febrile seizures are common. The objective of this study was to evaluate febrile seizures and identification of risk factors for recurrence of febrile seizures in children. **Methods:** This is a prospective hospital based study conducted in the Department of Pediatrics at Nepalgunj Medical College from July 2015 to June 2016, between age group of 6 months to 5 years meeting inclusion criteria. A complete history, detailed neurological examination and necessary investigations were done. Statistical analysis was computed using Statistical Package for the Social Sciences (SPSS) 16 version. **Results:** A total number of 72 children with febrile seizure were included in the study. Among them 49 (68%) were males and 23 (32%) were females. Maximum cases i.e. 43(60%) were in the age group of 7 months to 2 years and p value was 0.02 followed by 20(27%) in the age group of 2 years to 3.5 years and minimum were in the age group of 3.5-5years i. e 9(13%). Simple febrile seizure was seen in 45(63%) and complex febrile seizures was seen in 27(37%). Recurrence of seizure was present in 13(18%) patients. Most common precipitating factor for febrile seizure was upper respiratory tract infection seen in 51(71%) followed by lower tract respiratory infection in 8(11%), acute gastroenteritis in 5(7%) and others 8(11%). Generalized tonic clonic seizures (GTCS) were most common present in 56(78%) patients. **Conclusions:** Febrile seizures are common amongst male children. Risk of febrile seizures decreases with age. One fourth of children with febrile seizures are at risk for recurrence. Generalized tonic clonic seizures are found to be predominant type of febrile seizures. Most common risk factor for febrile seizure was upper respiratory tract infections (URTI).

Key words: Children, febrile seizure, recurrence

INTRODUCTION

Febrile seizures are one of the most commonly confronted pediatric emergency¹. It occurs among the children of 6 months to five years of age with 2 to 5% incidence^{2,3}. Most commonly affected age is between 12 to 18 months⁴. Febrile seizure are convulsions with fever more than 38°C without intracranial infection or evidence of metabolic disturbances and no history of afebrile seizures occurring in the age group of 6 months to five years^{5,6}. Febrile seizures are classified as simple and complex type. Approximately 65 to 90%⁷ of febrile seizures are simple type. Simple febrile seizure last less than 15 minutes with generalized in nature occurring only once in 24 hours period with no previous neurological problems¹. Whereas complex febrile seizures lasts for more than 15 minutes, focal in nature and recurs within 24 hours period and chance of recurrence is high. Risk factors for febrile seizures includes both viral and bacterial infections certain vaccinations, iron and zinc deficiency, genetic susceptibility and some obstetric complications like difficult birth and neonatal asphyxia^{9,10}.

A detailed history and comprehensive general and neurological examination is the fundamental for making an accurate diagnosis. A detail family history of febrile seizure, epilepsy, immunization, recent antibiotic use, duration of the seizure, prolong post ictal phase and any focal symptoms should be taken. Neurological and developmental status of the children with febrile seizure is normal before and after the episode.

While examination, pediatrician should focus on presence of meningeal signs and child's level of consciousness and should rule out any possibility of meningitis, encephalitis or encephalopathy. Failing to recognize even a single case of meningitis may prove fatal. Laboratory investigations and neuro imaging are not required in the evaluation of febrile seizures except for febrile status epilepticus¹¹, post ictal deficit lasting for more than few hours after complex FS and recurrent complex FS. Recurrence of Febrile seizure cannot be predicted through Electro encephalogram (EEG) and it is not recommended routinely unless there is strong suspicion of epilepsy. Pediatrician should focus on identifying the causes of fever and rule out meningitis. Previously lumbar puncture (LP) was recommended in children less than 1 year of age because of signs of meningitis are subtle in this age group. The current guideline for LP is children of 12-18 months with meningeal signs or with any other findings from history and physical examination suggesting intra cranial infections¹². This study can be useful to know the risk factors for recurrence of FS so that pediatrician can assess the chances of recurrence to start prophylactic measures for such children in advance. It prevents both child and parent from suffering of such traumatic experiences.

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MATERIAL AND METHODS

This was a prospective hospital based study conducted in the Department of Pediatrics at Nepalgunj Medical College from July 2015 to June 2016. A total number of 72 patients were taken from visiting Pediatric OPD and those who were admitted to in patient department in the age group of 6 months to 5 years meeting selection criteria. Selection criteria were neurologically normal children in the age group of 6 months to 5 years with temperature more than 38 degree centigrade and without any evidence of metabolic abnormalities. A thorough history, detailed neurological examination were recorded in pre designed proforma. Investigations were not done in all cases of febrile convulsions. Diagnosis of viral infection was made by clinical assessment. It was only performed according to the requirement. Statistical analysis was computed using Statistical Package for the Social Sciences (SPSS) 16 version. Cases of afebrile seizures, children on anticonvulsants therapy and who refused to give consent were excluded.

Verification for a febrile seizure was done during admission by asking screening question to the parents and full description of seizure was taken from eye witness. Simple febrile seizure was pre-defined as generalized febrile seizure lasting less than 15 min and no recurrence within 24 hours without postictal neurological abnormalities. Similarly, complex febrile seizure was defined as focal, prolonged or recurrent within 24 hours or associated with post-ictal neurological abnormalities including Todd paresis. Children with past history of at least one episode of febrile seizure and currently presented with another episode of febrile seizure were regarded as cases of recurrent febrile seizure.

Family history of febrile seizure and epilepsy was taken. Age of first episode of febrile convulsion among the cases of recurrences, presence of any focal features, duration of fever before seizure and duration of FS was asked to the parents. A Complete physical examination including developmental and neurological assessments was done for each child.

RESULTS

A total 72 children with febrile seizure were included in our study. Among them 49(68%) were males and 23(32%) were females. Maximum cases i.e. 43(60%) were in the age group of 7 months to 2 years and p value was 0.02 followed by 20(27%) in the age group of 2 years to 3.5 years and minimum were in the age group of 3.5-5 years i. e 9(13%). Simple febrile seizure was seen in 45(63%) and complex febrile seizures was seen in 27(37%). Recurrence of seizure was present in 13(18%) patients. Most common precipitating factor for febrile seizure was upper respiratory tract infection seen in 51(71%) followed by lower tract respiratory infection in 8(11%), acute gastroenteritis in 5(7%) and others 8(11%). Generalized tonic clonic seizures were most common present in 56(78%) patients.

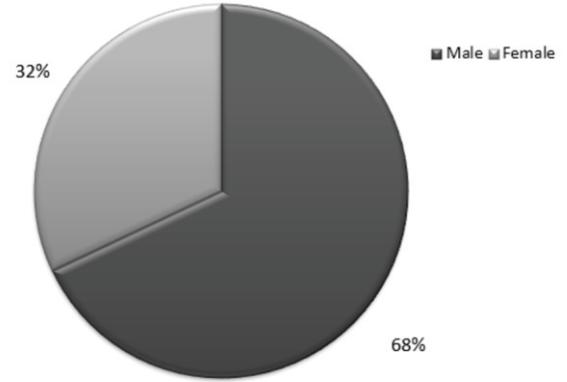


Figure 1: Sex distribution of febrile seizures

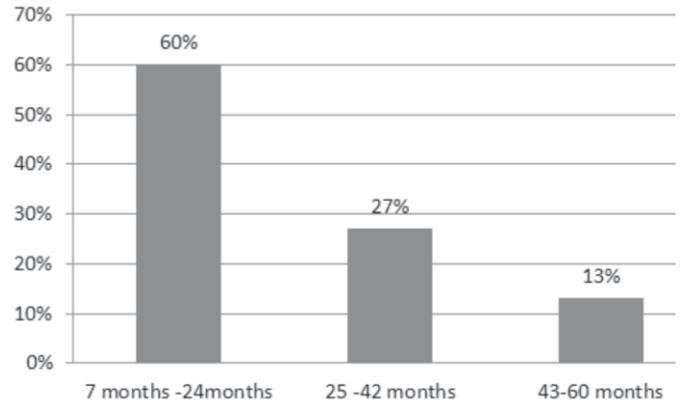


Figure 2: Age distribution of febrile seizures

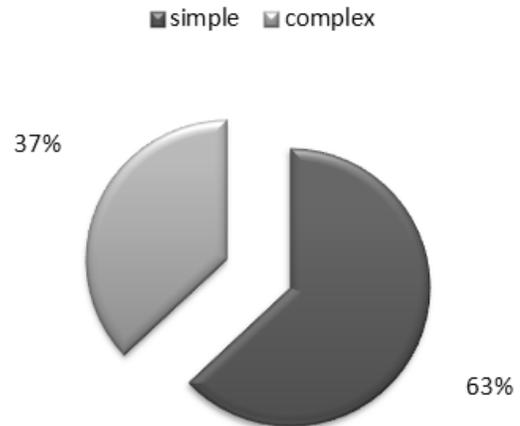


Figure 3: Type of seizure

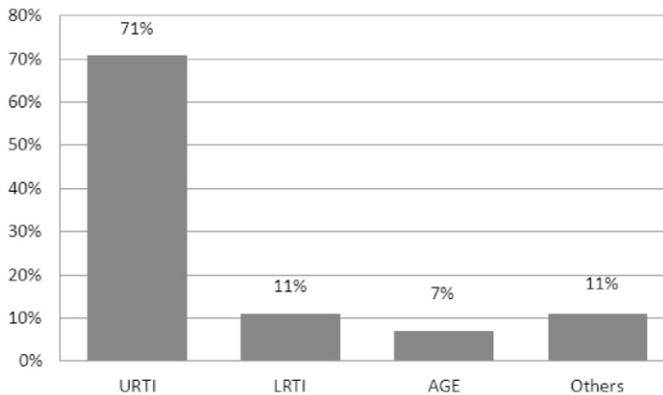


Figure 4: Cause of febrile seizure

URTI: Upper Respiratory Tract Infection

LRTI: Lower Respiratory Tract Infection

AGE: Acute Gastroenteritis

Others: Urinary Tract Infections, Impetigo, Otitis Media

DISCUSSION

Febrile seizures are a commonly confronted pediatric emergency which is seen in 6 months to 5 years of age. Sex distribution of our study shows predominance of males (49 out of 72 i.e. 68%) which is in accordance to study done by Agrawal J et al¹³. Other literatures has also shown such male predominance¹⁴.

Most of the cases were in the age group of 7 months to 2 years which is in consistence with the study done by Khair et al¹⁵. Another study had shown peak incidence at 18 months of age which was comparable to our study¹⁶. Our study shows simple types of febrile seizures in 78% of cases which is comparable to two other studies done by J Millichap et al¹⁷ and N Mustafic et al¹⁸.

Common causes of fever were URTI (71%), LRTI (11%) and AGE (7%). Mostly are of the conditions originated from viral infections which were diagnosed through clinical manifestations in children and wherever required routine investigations were also done. Another study has shown that 53% of the children had upper respiratory tract infection in a study which is comparable to our study. Similarly the overall viral identification rate in a study was 49%¹⁹.

Rate of recurrence was found to be 25% in the present study which is comparable to a study done at BPKIHS¹³. Other studies has not favored such low recurrence rate because there was no family history of febrile seizures in most of the cases and most of the children were in the age group of 2 years and our patients have not turned up for follow up. A study done by Shrestha et al had seen 40% recurrence²⁰. Similarly other studies had also shown high recurrence rate²¹.

CONCLUSION

Febrile seizures are common amongst male children and decreases with age. One fourth of children with febrile seizures are at risk for recurrence. GTCS are found to be predominant type of febrile seizures. Most common risk factor for febrile seizure was URTI in this study.

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