Research Paper

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Role of CSF analysis in the first episode of febrile seizure- A descriptive study

Medical Science

KEYWORDS : FEBRILE SEIZURES, LP, CSF

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ABSTRACT

OBJECTIVE-To find out the role of CSF analysis to rule out the meningitis and therefore to determine whether LP is necessary in children in the first episode of febrile seizure.MATERIAL AND METHODS-This study was carried out in the patients attending paediatric department of our hospital a tertiary care medical college,Nashik,india from Jul 2011 to Oct 2013. A total of 55 patients were studied.RESULTS-In a present study Simple febrile seizures were present in 34 (61.82%) children, complex febrile seizure in 4 (7.27%), meningitis in 17 (30.91%).Meningitis was present in 9 (42.86%) children in the age group of 6-12 months (0.042, S,p<0.05), the p-value was Significant in this age group. CONCLUSION- it was found that meningitis is a common presentation in the pediatric emergency department in children who come with apparent febrile seizure.

INTRODUCTION-

Febrile seizures are the most common convulsive events in human experience. They were recognized as distinct from other seizures in the mid-19th century, and at that time, treatment was redirected to the underlying causes of fever rather than the symptom of a seizure. With the introduction of the thermometer at the end of the 1800s, fever was understood to be the primary factor producing the convulsion. Until the early 20th century, infantile convulsions were thought to be severe and often fatal. Unfortunately, few effective treatments were available. Sentinel studies in the 1940s by Lennox and Livingston investigated risk factors for recurrence and later epilepsy.[3,4]

Febrile seizures are generally thought to be benign, and only 2% to 3% of affected children will later develop epilepsy. The risk of epilepsy following a simple febrile seizure is about 2% and following a complex febrile seizure still only 5% to 10%. Therefore, febrile seizures can be viewed as a syndrome of acute symptomatic seizures rather than as a true epileptic syndrome.[13]

Febrile seizures are seizures that occur between the age of 6 months and 60 months with a temperature of 380C or higher, that are not the result of central nervous system infection or any metabolic imbalance, and that occur in the absence of a history of prior afebrile seizures.[14]The 1993 International League Against Epilepsy defined a febrile seizure as "an epileptic seizure occurring in childhood associated with fever, but without evidence of intracranial infection or defined cause. Seizures with fever in children who have experienced a previous non febrile seizure are excluded. [15] A simple febrile seizure is a primary generalized, usually tonic-clonic, attack associated with fever, lasting for a maximum of 15 min, and not recurrent within a 24-hour period. A complex febrile seizure is more prolonged (>15 min), is focal, and/or recurs within 24 hr. Febrile status epilepticus is a febrile seizure lasting >30 min.

In May 1996, the American Academy of Paediatrics (AAP) issued practice parameters regarding the neurodiagnostic evaluation of children with a first simple febrile seizure (FSFS) who present within 12 hours after the seizure.The AAP practice parameters recommended that lumbar puncture (LP) be strongly considered for patients <12 months of age and be considered for patients 12 to 18 months of age, in an effort to diagnose bacterial meningitis among children with FSFS as their sole clinical manifestation of infection.[16]Several studies demonstrate the benefit of lumbar puncture (LP) in patients with febrile seizure to diagnose meningitis.In the view of febrile seizure most common age group in patients of age 6 months to 60 months. This study was conducted with the objectives to find out CSF analysis findings to rule out meningitis and therefore, to know the importance of lumbar puncture (LP) in children aged 6 months to 60 months presenting with first episode of seizure with fever.

MATERIAL AND METHODS-

The study was conducted on CSF analysis in the first episode of febrile seizure patients attending pediatrics department of our hospital.

Study design :

This was a prospective study.

Sample size: 55 cases.

Duration of study: JuI 2011 to Oct 2013.

Inclusion criteria:

Children of age 6 months to 60 months presenting with first episode of seizure with fever.

Exclusion criteria:

1.Children with other neurological disorders like cerebral palsy, mental retardation, past history of meningitis with seizure.
2.Fever after episode of Seizure.
3.Patient on antibiotic for more than 48 hours before reporting our Hospital.

METHOD-

The proposed study was conducted at Medicalcollege, Hospital &Research, Tertiary health care Center, in Department of Pediatrics. Children of age 6 months to 60 months presenting with first episode of seizure with fever in our Hospital was selected for the study.Informed written Consent was taken from the parents of the patient. The clinical evaluation of the selected patient was includedetailed history, examination and necessary investigations for the relevant problem for which they are admitted. Along with these investigations CSF analysis was done in these patients after ruling out raised intracranial tension (Fundoscopy by ophthalmology dept.) Children was considered as having fever if axillary temperature recorded at the emergency is >100.40 F. All data were recorded on a master chart and subjected to Statistical analysis was done by using descriptive and inferential statistics using z-test for single proportion. The software used in theanalysis were SPSS 17.0 and Graph Pad Prism 5.0 and p<0.05

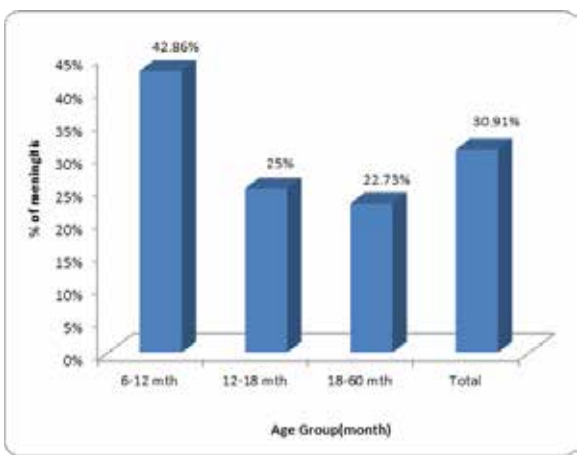
is considered as level of significance.

RESULT-In a present study, we distributed 55 childrens according to their age in months, the age group of 18-60 months formed the majority 22 (40%) followed by 6-12 months age group 21 (38.18%) and least between age of 12-18 months 12 (21.82%)., febrile seizures was more in males, accounting 32 cases (58.18%) while female cases were 23 (41.82%).This study showsSimple febrile seizures were present in 34 (61.82%) children, complex febrile seizure in 4 (7.27%), meningitis in 17 (30.91%).Meningitis was present in 42.86% of the children in the age of 6-12 months (0.042, S,p<0.05), 25% of 12-18 months children(0.68, NS,p>0.05) and 22.73% of 18-60 months of children(0.47, NS,p>0.05 respectively).

Table 1. : Showing details of meningitis(%) as per different age group in this study.

Age Group	No of children	Meningitis	Percentage(%)	p-value
6-12 mth	21	9	42.86	0.042,S,p<0.05
12-18 mth	12	3	25.00	0.68, NS,p>0.05
18-60 mth	22	5	22.73	0.47, NS,p>0.05
Total	55	17	30.91	0.31, NS,p>0.05

Figure 1: Showing details of meningitis in this study.



DISCUSSION-

The result of present study of 55 cases of febrile seizures in our pediatrics department has been analyzed, discussed & compared with the other workers in the field.

Meningitis remains an important cause of morbidity and mortality. It is a medical emergency in children and should not be missed in any patient with febrile seizures. In this study we attempt to evaluate the risk of meningitis among children with first attack of febrile seizure in age group 6 to 60 months.

In a present study Simple febrile seizures were present in 34 (61.82%) children, complex febrile seizure in 4 (7.27%), meningitis in 17 (30.91%).

In the studies done by Laditan AAO et al (1995)[17], Joshi BR et al (2008)[18], Karimzadeh P et al (2008)[19], Shrestha SK et al (2010)[20] and Jai krishin et al (2012)[21] meningitis was found in 6(6.3%),30(17.14%), 9(2.9%),16 (14.54%) and 6(4.8%) cases respectively.

Our finding was comparatively higher than the above studies.

CONCLUSION-

Febrile seizures are a common benign disorder with an excellent outcome. Exclusion of central nervous system infection such as meningitis and encephalitis is important. Febrile seizure can recur, and as it often is a frightening and anxiety-provoking event for parent and caregivers.Though meningitis in children is a very critical problem, only few published studies are available on this topic.Febrile seizures are one of the authentic clinical factors for meningitis especially in the younger age. A timely diagnosis of the ailment can help reduce the morbidity and mortality associated with bacterial meningitis.

In conclusion, it was found that meningitis is a common presentation in the pediatric emergency department in children who come with apparent febrile seizure thus meningitis should always be considered as a differential diagnosis. Lumbar puncture and CSF analysis is must to rule out meningitis in all children between ages group 6-60 months presenting with first episode of febrile seizure, so that not even a single case of meningitis can be missed.

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