FFREQUENCY OF POSITIVE CEREBROSPINAL FLUID FOR FIRST EPISODE OF FEBRILE CONVULSIONS AMONG 18

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ABSTRACAT

Background: febrile convulsions are seizures, that usually presents with fever and are experienced by children. Possi- ble causes of febrile convulsions may include a genetic predisposition, bacterial or viral infection and some vaccines.

Objective: To determine the frequency of positive cerebrospinal fluid from lumbar puncture in children having 1st episode of febrile convulsions.

Materials and Methods: Study Design: Cross-sectional study Setting: Department of Paediatrics, Hayatabad Medical Complex, Peshawar. Duration of Study: six months 01/2/2016 to 31/7/2016. Data collection: 125 cases age less than 18 months presenting with 1st episode of febrile convulsions were included through non-probability purposive sam- pling technique. LP was done and samples sent to the laboratory for assessment of cerebrospinal fluid. Reports were obtained and results were noted.

Results: In this research based study mean age was 12 months and SD ± 3.81.55% children were male while 45% were female. Among these children 10% had positive cerebrospinal fluid while 90% were negative.

Conclusion: The incidence of positive cerebrospinal fluid from lumbar puncture was found to be 10% in the 1st episode of febrile convulsions among children between 6-18 months of age.

Key Words: positive cerebrospinal fluid, lumbar puncture, febrile convulsion, children

INTRODUCTION

Febrile convulsions will be seizures that are related with fever and experienced by infants or youngsters. Roughly 3% to 5% kids between the ages of a half year and 6 years have a febrile convulsion. Among young- sters who have had a febrile convulsion, about 20% to 30% will have another at some point1. Potential reasons for febrile convulsions may incorporate a hereditary in- clination, bacterial or viral disease and some vaccines2. Routine research center investigations in patients with simple febrile convulsions are not favoured in light of the fact that electrolyte variations from the normal and genuine bacterial ailments are rare3. In a research based study 379 kids with simple febrile convulsions, eight (2.1%) were found to have bacteremia4.

Streptococcus pneumonia was found in seven of the eight youngsters and infants, in a time before routine pneumococcal vaccination5. It is basic to role out basic meningitis in all kids with febrile convulsions, clinically or through lumbar puncture. There is no proof to help, routine lumbar puncture in all kids with simple febrile seizures, particularly when signs of meningitis are lacking6.

Paediatric febrile convulsions, most common recognized seizures disorder in age group mention children, exists most commonly with raised tempera- ture. Widely research studies conducted recommends, that they febrile convulsions has little association with impairment of cognitive capacity.

Epidemiologic investigations and research work have prompted the division of febrile seizures into three classes, as below7:

- Simple febrile convulsions
- Complex febrile convulsions
- Symptomatic febrile convulsions

Literature has showed that lumber puncture has no role in diagnosis of cause of febrile convulsions and mostly cases are negative, very few cases are found to be positive. Moreover, clinical symptoms can help in diagnosis of bacterial meningitis. So lumber puncture can be omitted. But controversial results are also present in literature which showed high incidence of positive cerebrospinal fluid for bacterial meningitis in children admitted with 1st episode of these convulsions. that is why lumber puncture is still in practice. So through this study we want to curtail the use of unnecessary lumber puncture. This will also improve our practice and prevent children from hazardous after effects.

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OBJECTIVES

To determine the frequency of positive cerebro- spinal fluid from lumbar puncture for 1st encounter of febrile convulsion in children

MATERIAL AND METHODS

This cross sectional study was done in Depart- ment of Paediatric Medicine, Hayatabad Medical Com- plex, Peshawar from 01/02/2016 to 31/06/2016. Sample size was 125 patients. Children of age 6 months to 18 months of either gender presenting with first episode of febrile convulsions (defined as if a child was present seizure for the first time in life accompanied by fever (temp>100oF), with a generalized seizure but no recur- rence within 24 hours) planned to undergo lumbar punc- ture for cerebrospinal fluid analysis. Children with repeat episode of seizures (on history and medical record), in whom fever occurs after seizure, who was already on antibiotic, Mentally retarded children or children with cerebral palsy (on clinical examination), children with History of head trauma or ventricular-peritoneal shunt and Children with clinical suspicion of meningitis (bulging fontanel, nuchal rigidity, petechiae, positive kerning sign, positive Brudzinski sign) were excluded from the study.

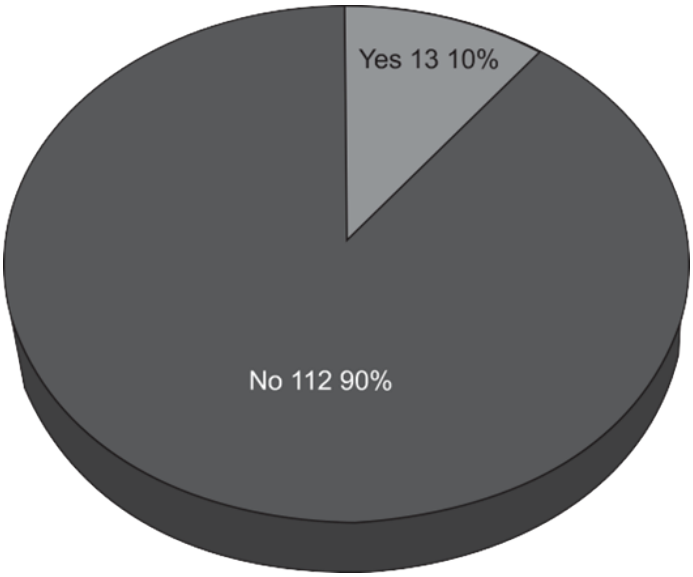

Fig 1: Positive Cerebrospinal Fluid (n=125)

Data Collection Procedure

Children fulfilled selection criteria were included through emergency of Department of Pediatric Medi- cine, Hayatabad Medical Complex, Peshawar. Consents were taken from parents. Name, age, gender, fever and presence of seizure was noted. Two cerebrospinal fluid samples was collected in tubes, samples were sent for cytology and biochemical assessment. Both reports were assessed and if all of the following present: CSFs cells >5/mm3, Protein greater than 40mg/dl and/or sugar two third of blood glucose level in cerebrospinal fluid, then it was labeled.

Data analysis: all the information was put in a software SPSS version 17. The quantitative variables like age, fever and seizure have been presented as mean with SD. The qualitative variables like gender and positive cerebrospinal fluid through lumber puncture have been presented as frequency and percentage. Data was stratified for age, gender, fever and seizure. Chi-square test have been applied and P-value<0.05 was taken as significant.

RESULTS

Age was 12±3.81 months. Among 125 chil- dren, 55(44%) children were 6-11 months old while 70(56%) children were 12-18 months old. There were 69(55%) male while 56(45%) female. The mean fever was 103±2.77 OF, 101(81%) children had fever ranged 100-104oF while 24(19%) children had fever ranged 105-106oF. Regarding seizure, all the 125 children had seizure. (Table 1).

Frequency of positive cerebrospinal fluid among 125 children was analyzed as 13(10%) children had positive cerebrospinal fluid while 112(90%) children didn't had positive cerebrospinal fluid. (Fig 1)

DISCUSSION

Febrile convulsions are seizures that are related with fever and experienced by an infant or kid. Around 3% to 5% of kids between the ages of a half year and 6 years

Table 1: Children's characteristics (n=125)

Age (months)	**12.00±3.81**
6-11 months	55 (44%)
12-18 months	70 (56%)
Male	69 (55%)
Female	56 (45%)
Fever (temp, oF)	103±2.77
100 -104oF	101 (81%)
105- 106oF	24 (19%)
Seizure	125 (100%)

have a febrile seizure. Among youngsters who have had a febrile convulssion, about 20% to 30% will have another encounter of that in life at points of life1. Possible reasons for febrile convulsions may incorpo- rate a hereditary inclination, bacterial or viral contami- nation and certain vaccines.2 In our examination mean age was a year with SD ± 3.81. 55% youngsters were male while 45% kids were female. 10% youngsters had positive cerebrospinal liquid while 90% kids didn't had positive cerebrospinal liquid.

Comparable outcomes were found in another research done by Krishin J et al7 in which a sum of 125 cases were joined. 78 (62.4 %) were male. Mean age was 31 months. The consequences of CSF analysis demonstrated that 6(4.8%) had increased number of leukocyte level, while 119(95.2%) had normal. Out of 125 patients,15(12%) had increase protein in CSF while 110(88%) had normal.

Also 26(20.8%) of the investigation patients had not

normal glucose level in the CSF while 99 (79.2%) had normal sugar level. In the present study CSF culture and gram staining was distinctly in 4(3.2%) patients. Pyogenic meningitis was analyzed in 6 patients which was 4.8% of the participant. Out of these patients 5(4.1%) were as long as 1 year of age while 1 (0.8%) was more than 1 year of age.

A few has revealed 0% positive cerebrospinal liquid culture for pathogens in kids giving first scene of febrile seizures, discrediting the job of timber cut for cerebrospinal liquid examination for determination of reason for fits in youngsters with fever.9, 10 Other inves- tigations on cerebrospinal liquid energy for meningitis in febrile convulsion kids have discovered the frequency to fluctuate from 2-7%.7, 9, 11

In Kathmandu Children Hospital, 10.9% of pa- tients with obvious 1st febrile seizure were found for positive CSF culture and bacterial meningitis was labeled12.a research work Nepal revealed that positive cerebrospinal liquid culture for bacterial meningitis was found in 14.5% cases.12 However, research based study in Saudia,- showed positive CSF cultures for bacterial meningitis was found in 26.67% cases of febrile seizures suggesting high positive role of cerebrospinal liquid analysis in patients of febrile convulsions13.

CONCLUSION

Our study concludes that the incidence of positive cerebrospinal fluid from lumbar puncture was found to be 10% in the 1st episode of febrile convulsion in children of age 6-18 months.

REFERENCES

1. Razón Behar R. Fiebrefobia. Revista Cubana de Pediatría 2011;83(4):431-41.

2. Mabila LN, Schellack N, Gous A. Antibiotic prescribing patterns amongst healthcare profession- als in a paediatric ward at Van Velden Hospital, Tzaneen-Limpopo Province: University of Limpopo (Medunsa Campus); 2014.

3. Hampers LC, Spina LA. Evaluation and management of pediatric febrile convulsions in the emer- gency department. Emergency Medicine Clinics 2011;29(1):83-93.

4. Cornitescu M, Pleçca DA. Rolul Ageniilor Infeciioçi $i Al Trăsăturilor Gazdei În Producerea Convulsiilor Febrile La Copil. Romanian Journal of Infectious Diseases 2015;18.

5. Graves RC, Oehler K, Tingle LE. Febrile convulsions: risks, evaluation, and prognosis. American family physician 2012;85(2).

6. Fetveit A. Assessment of febrile convulsions in children. European journal of pediatrics 2008;167(1):17- 27.

7. Akpede GO, Sykes RM, Abiodun PO. Indications for lumbar puncture in children presenting with convulsions and fever of acute onset: experience in the Children's Emergency Room of the University of Benin Teaching Hospital, Nigeria. Annals of tropical paediatrics 1992;12(4):385-9.

8. Krishin J, Hussain M, Rahman A, Amber W. Utility of Lumber Puncture in the Diagnosis of Bacterial Meningitis among Children with Febrile convulsions and Without Clinical Signs of Meningitis. Ann Pak Inst Med Sci 2012;8(2):110-2.

9. Teach SJ, Geil PA. Incidence of bacteremia, urinary tract infections, and unsuspected bacterial menin- gitis in children with febrile convulsions. Pediatric emergency care 1999;15(1):9-12.

10. Kimia AA, Capraro AJ, Hummel D, Johnston P, Harper MB. Utility of lumbar puncture for first simple febrile convulsion among children 6 to 18 months of age. Pediatrics 2009;123(1):6-12.

11. Abuekteish F, Daoud A, Al-Sheyyab M, Nou'man M. Demographic characteristics and risk factors of first febrile convulsions: a Jordanian experience. Tropical doctor 2000;30(1):25-7.

12. Shrestha SK. Role of CSF Analysis for the first episode of febrile convulsion among children between six months to five years of age. Journal of Nepal Paediatric Society 2010;30(2):90-3.

13. Ameen DM, Hassan FA, Moosa AI. Is Lumbar Puncture Mandatory for First Simple Febrile convulsions Among Children 6 to 18 Months of Age. Kerbala Jorunal of Medicine 2012;5(11):1262-7.