Innovations

Clinico-Etiological Profile of Children with Acute Febrile Encephalopathy Study done in tertiary care Government Medical College & Hospital, Srikakulam

Dr Menni Chowdary Babu[1], Dr Dinendraram Ketireddi[2], Dr Pilli Sandeep[3], Dr Seepana Somasekhara Rao[4]*

[1]Dr Associate professor, Department of Pediatrics Government medical college, Srikakulam.
[2]Dr Assistant Professor, Department of Pediatrics Government medical college, Srikakulam
[3]Dr Assistant professor of paediatrics Government medical college Srikakulam
[4]Dr Associate professor, Department of Pediatrics Government medical college, Srikakulam
Corresponding Author: **Dr Seepana Somasekhara Rao**

Abstract:

Background: *AFE (Acute febrile encephalopathy) is one of the major causes of hospitaladmissions of children and adults in India.Acute febrile encephalopathy (AFE) is defined as a fever associated with acute alteration of consciousness, with or without a seizure, motor and/ or sensory deficit and total duration of illness two weeks or less. The main aim of this study was to assess the clinical-aetiological profile of children with AFE.* ***Materials and Methods****: This prospective observational study was carried out at the government general hospitalin Srikakulam,over 6 months.A total of 43 children aged 1 month to 12 years who were admitted to PICU with fever ≤ 2 weeks duration and altered sensorium either at onset or following fever were enrolled.The patient's detailed history and physical examination including detailed neurological examinations were recorded on pre-structured proforma.The aetiology of AFE was evaluated based on a detailed history, a meticulous clinical examination and relevant investigations.* ***Results:*** *The incidence of AFE was 42 (2.8%) of the total hospital admissions.The most important presenting complaints apart from fever and altered sensorium, most common presenting complaints were headache 66.7%, and vomiting 57%, followed by Seizures 47.6%, neck rigidity 28.6%, hypertonia 19%and focal neurological deficits 14.3%were seen.The diagnoses based on clinicalpresentation and laboratory findings were pyogenic meningitis in 13 (31%), followed by Cerebral malariain 12 (28.6%),Suspected viral encephalitisin 8 (19%),tubercular meningitisin 4 (9.5%),Dengue encephalopathy 3(7%),Enteric encephalopathy 2(4.8%).* ***Conclusions:*** *Pyogenic meningitiswas the leading cause of AFE followed by cerebral malaria, and suspected viral encephalitis. Early identification and preventive strategies must be keeping mind.*

Keywords: 1.*Pyogenic meningitis, 2.altered sensorium, 3.encephalopathy.*

Introduction:

Acute febrile encephalopathy is defined as a fever associated with acute alteration of consciousness, with or without a seizure, motor and/ or sensory deficit and total duration of illness one week or less.[1]

It is a diagnostic and therapeutic challenge as well as a medical emergency for the paediatrician.[2]
The profile of AFE varies across geographic regions and seasons within the same area. Despite extensive epidemiological research, the presentation of acute onset fever and altered sensorium has frequently remained a mystery, particularly in Indian states.

The present study was conducted at a tertiary care government general hospital, Srikakulam to find out theetiological pattern and clinical presentation of acutefebrile encephalopathy in children.

Materials and Methods:

This prospective observational study was carried out in the department of paediatrics Government medical college and hospital Srikakulam, over6 months.

Inclusion criteria:All children of age 1 month to 12 years who were admitted to PICU with fever ≤2 weeks duration and altered sensorium either at onset or following fever were included in this study.

Exclusion criteria:Patients with traumatic coma, simple febrile convulsions,cerebral palsy, space-occupying lesion (SOL), CNS malformationand epilepsy were excluded from our study.Also, those patients excluded were from whom consentcould not be obtained and those who left the hospitalwithout completing treatment.

A detailed history and clinical examinationincluding neurological examination were done in allsubjects. The investigations performed in every childincluded blood counts, peripheral smear for the malarialparasite, quantitative buffy coat (QBC) for malaria, NS1 antigen, and IgM antibody for dengue, blood culture, cerebrospinal fluid (CSF)examination for cytology, Gram stain, AFB stain,biochemistry and culture.X-ray chest PA view, blood culture & sensitivity andCT/ MRI brain were performed whenever required.Management was given accordingto standard protocol.

Figure 1: Diagnostic criteria used for different etiologies of acute febrile encephalopathy[9]

	DIAGNOSTIC CRITERIA
Pyogenic Meningitis	Fever with altered sensorium + CSF cytology +_ Meningeal enhancement on CT and MRI
Tubercular Meningitis	Fever with altered sensorium + CSF cytology +_ Parenchymal enhancement on CT and MRI +_ CSF ADA>10 +_ CSF PCR
Viral Meningitis	Fever with altered sensorium + CSF cytology +_ Parenchymal enhancement on CT and MRI +_ CSF PCR +_ clinical co-relation
Cerebral Malaria	Fever with altered sensorium + Normal CSF cytology +_ Normal CT and MRI brain +_ HRP antigen test for malaria +_ clinical co-relation

Results:

A total of 42 children were admitted with the diagnosis ofAFE during the study period.Most of the children 26 (62%) were below 5 years of age, and 16 (38%) were between6-12 years. Male tofemale ratio was 2:1. The incidence of acute febrileencephalopathy was 2.8%.

The most important presenting complaintsapart from fever andaltered sensorium, most common presenting complaintswereheadache 66.7%, vomiting 57%, followed by Seizures 47.6%, neck rigidity 28.6%, hypertonia 19%and focal neurological deficits 14.3%were seen. (Table 1)

Table 1: Distribution of cases according tothe frequency of clinical symptoms and sign

Clinical Features	Number	Percentage(%)
Fever	42	100%
altered sensorium	42	100%
headache	28	66.7%
vomiting	24	57%
Seizures	20	47.6%
neck rigidity	12	28.6%
hypertonia	8	19%
focal neurological deficits	6	14.3%

The most common aetiology of AFE found in our study was Pyogenic meningitis (31%) followed by cerebral malaria 28.6% suspected viral encephalitis (19%) remaining shown in table 2.

In our study, out of a total of 42 cases, 40 (95.2%) patients were discharged from the hospital after the treatment and 2 (4.8%) patients expired. A mortality rate was observed in suspected viral encephalitis (2 cases).

Table 2: Etiological distribution of patients across various age groups.

S No	Diagnosis	No of cases	I month to 5 years	6 years to 12 years
1	Pyogenic meningitis	13 (31%)	10	3
2	Cerebral malaria	12 (28.6%)	5	7
3	Suspected viralencephalitis	8 (19%)	5	3
4	Tubercular meningitis	4 (9.5%)	3	1
5	Dengue encephalopathy	3 (7%)	3	0
6	Enteric encephalopathy	2 (4.8%)	0	2

Discussion:

In this hospital-based prospective study, we analysed theclinical profile, and aetiology of 42 childrenadmitted to PICU with AFE. Acute Febrile Encephalopathywas an important cause of hospital admissions constituting 2.8 % of all hospital admissions. Male to female ratio inour study was 2:1 and the majority of patients belongedto the age group 1month to 5 years (62%).

Similar results were observed by Gupta et al[3] and Sharma et al[4]. In contrast to our study, Tripathy et al[5] found a maximum of children from the age group of 5-15 years.

In the present study, males 28 (66.7%) were affected more than females 14 (33.3%) with male to female ratio of 2:1. Similar results were found in the study done by Khinchi et al[6], Biswas et al[7], Tripathy et al[5].

In our study, the main presentation was fever and altered sensorium present in all 42 patients. Headache (66.7%) and vomiting (57%)was the most common clinical symptom.In the study done by Biswas et al[7],the most common presenting complaints were convulsion and vomiting and in the study by Singh et al[8], the most common presenting complaints were headache and vomiting.

We could identify the aetiology in the majority of cases due to the availabilityof various investigational modalities but could not study all the knownviral causes of encephalitis. That was a limitation of the study besidesthe relatively less number of affected children.

Conclusion: Acute onset of fever with altered sensorium isa common problem encountered by a paediatricianespecially those practising.In this study, pyogenic meningitis was the leading cause of acute febrile encephalopathy in children followed by, cerebral malaria, and suspected viral encephalitis.Early diagnosis of disease and the institution of aggressive supportive care may be able to decrease mortality and long-term morbidity.

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Corresponding Email: ***dinendraram@gmail.com***