



**ORIGINAL RESEARCH PAPER**

**General Medicine**

**A STUDY ON ETIOLOGY, CLINICAL FEATURES DIAGNOSIS AND PROGNOSIS IN ACUTE FEBRILE ENCEPHALOPATHY**

**KEY WORDS:**

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**ABSTRACT**

**BACKGROUND:** Acute febrile encephalopathy (AFE) is a clinical term used to an altered mental state that either accompanies or follows a short febrile illness and is characterized by a diffuse and nonspecific brain insult manifested by a combination of coma, seizures, and decerebration. **OBJECTIVES:** To identify the etiological diagnosis and outcome in adult patients with Acute Febrile Encephalopathy. **MATERIALS AND METHODS:** A prospective observational study was done in patients aged 13 years or above who were admitted with AFE. The non-infectious causes of unconsciousness were excluded. CSF analysis and imaging of brain was done to determine the possible etiology. Outcome was assessed at 1 month of follow up after discharge by using modified Rankin Scale (MRS). Data were analyzed and presented as mean, median, and percentages. **RESULTS:** Among the 50 patients 33 (66%) are male patients. 43 patients (86%) were young adults. The common presenting symptoms are fever in 41 patients (82%), headache in 29 patients (58%), altered sensorium in 19 patients (38%). AFE was common in males when compared to female, more common in age group 30-40 years. Acute viral encephalitis was the most common cause accounting for 36 percentage in which Herpes Simplex Encephalitis 24 percentage Japanese encephalitis 4 percentage and other undetermined viral etiology count for 10 percentage followed by pyogenic meningitis 28 percentage followed by tuberculous meningitis 12 percentage, cerebral malaria diagnosed 2 percentage sepsis associated encephalopathy 10 percentage in which 6 percentage leptospirosis and 4 percentage scrub typhus were diagnosed. Of all the total cases 2 patient died in which one patient with HIV associated cryptococcus meningitis other patient with pyogenic meningitis. MRS at discharge were five in pyogenic meningitis three in viral meningitis after one month, MRS was 2 in pyogenic meningitis and the rest it was less than one. **CONCLUSION:** In the present study we found that, most of the patients with meningoencephalitis were males and young adults in this study viral meningo encephalitis was the leading cause of acute febrile encephalopathy followed by pyogenic meningitis and tuberculous meningitis. The outcome in cases with pyogenic meningitis can be fatal or more disabling than other aetiology.

**INTRODUCTION:**

Acute febrile encephalopathy is term clinically used for altered mental status that follows short febrile illness characterised by diffuse nonspecific brain insult with clinical manifestations of coma, seizures and decerebration. Meningitis is a clinical syndrome characterized by inflammation of meninges. The classic triad of meningitis consists of fever, headache and neck stiffness. Bacterial (pyogenic) meningitis is a pyogenic inflammation of meninges and subarachnoid cerebrospinal fluid (CSF) and is characterized by neutrophilic pleocytosis in CSF.

Tuberculous meningitis should be a strong consideration when a patient presents with clinical picture of meningoencephalitis, especially in highrisk groups, including persons with malnutrition, those with alcohol abuse or drugs and patients with known retroviral infection. Death may occur as a result of missed diagnosis and delayed treatment.

World-wide causes of viral meningitis include enterovirus, herpes, mumps, measles and HIV. Enterovirus is the most common cause of viral meningitis. Aseptic meningitis is an illness characterized by serious inflammation of the meninges, usually with an accompanying CSF lymphocyte pleocytosis. Clinical manifestations vary with headache and fever predominating. The illness is usually mild and runs its course without treatment, however some cases can be severe and life threatening. Cryptococcal meningitis is caused by the yeast *Cryptococcus neoformans*, especially in persons with defective cell mediated immunity. Prompt antifungal therapy should be considered in these patients.

**AIMS AND OBJECTIVES:**

- To identify to etiology, clinical manifestations of various acute febrile encephalopathy

- To evaluate for diagnosis and to asses prognosis in acute febrile encephalopathy.

**SELECTION CRITERIA:  
INCLUSION CRITERIA:**

All children over the age of 13 and all adults up to the age of 65 are included patients with an acute febrile illness lasting less than 2 weeks and any of the clinical neurological manifestations of altered consciousness level, headache, disorientation, vomiting, focal neurological deficit, blurring of vision, and diarrhoea, vomiting, chills, and rigors. A total of 50 patients were enrolled in the study

**EXCLUSION CRITERIA:**

Patients with non-infectious causes of unconsciousness, such as traumatic brain injury, metabolic encephalopathy, dyselectrolytema space occupying lesion, endocrinopathies and vascular (vasculitis, SLE, SAH, SDH, stroke, and behcets) with a history of neurological disorders such as seizures and whose persistent altered mental status could be attributed to dearranged condition was excluded.

**OBSERVATION AND RESULTS:**

In our study of 50 AFE patients 44% are between age group 30-40 yrs, 22% between 21-30yrs, 18% below 20 yrs, 14% between 41-50 yrs, 2% between 20-30 yrs. male patients were more common in our study group about 62%, females 38%. among clinical features patients presented with fever 82%, headache 58%, neck rigidity 52% were the most common clinical manifestations, altered sensorium 38%, seizures 20%, rashes, vesicles 2% was least common.

Complete blood count shows only 2% of patients has very low heamoglobin of about 6-8 gm/dl and 40% had normal levels. total wbc count was increased in 60% cases, platelet count was reduced in 50% of cases and 10% had very low

levels and needed platelet transfusion in our study.

Liver function test was raised in 40% of cases of patients due to hepatic complications.

Renal function test, 68% has raised blood urea levels, 78% has raised creatinine levels in our study.

Mantoux test was positive in our study in 8% cases with tuberculosis in patients with tuberculous encephalitis. sputum culture and sensitivity seen in 6% cases in our study.

Serology showing herpes simplex virus was positive in 24% with maximum incidence among patients with positive IgM antibodies, malaria was positive in 12% cases, widal positive in 10% cases in our study.

Blood culture and sensitivity pneumococcus positive in 8%, salmonella 2%, staphylococcus 2%, streptococcus 4%. CSF analysis proteins are elevated in 64%, glucose low in 56%. gram stain positivity streptococci 4%, staphylococci 4%, nesseria meningococci 2%, mycobacterium tuberculosis 6%, pneumococcus 4%.

CSF culture sensitivity bacteria 28%, mycobacterium tuberculosis 6%, fungus 2%.

CSF viral study herpes simplex virus 24%, cytomegalovirus 4%, ebstein barr virus 2%, Japanese encephalitis virus 4%, varicella zoster virus 2%, unidentified 10%.

**COMPLICATIONS IN PATIENTS WITH ACUTE FEBRILE ENCEPHALOPATHY:**

Complications in Patients with Acute Febrile Encephalopathy		Frequency	Percent
Improved completely Without any complication Or neurological deficit		40	80.0
Improved completely With neurological deficit	Focal Neurological Deficit	1	2.0
	Visual Deficits	1	2.0
	Sensorineural Deafness Focal Neurological Deficit	1	2.0
Other system Involvement	ARF-acute renal failure	1	2.0
	GIT-gastrointestinal	3	6.0
	RS	4	8.0
Dead	Dead	2	4.0
	MODS-Multiorgan failure	2	4.0
	DIC-Disseminated intravascular coagulation	1	2.0
	ARDS-Acute respiratory distress syndrome	2	4.0

**PROGNOSIS AND COMPLICATIONS IN PATIENTS WITH ACUTE FEBRILE ENCEPHALOPATHY:**

Complications in Patients with Acute Encephalopathy in Patients	Frequency	Percent
Respiratory failure	5	10
Psychosis	2	4.0

Peripheral circulatory failure	5	10.0
Sepsis	6	12.0
Hemiparesis	5	10.0
Quadriparesis	3	6.0
Pericardial effusion	4	8.0
Drug reaction	3	6.0

**GENERAL AND SYSTEMIC EXAMINATION OF FINDINGS IN ACUTE FEBRILE ENCEPHALOPATHY:**

General Examination finding of AES	Frequency	Percent
Temperature (100 F)	30	60.0
Tachycardia	20	40.0
Bradycardia	3	6.0
Tachypnea	4	8.0
Anemia	13	26.0
Hypotensive shock	5	10.0
Icterus	9	18.0
Edema	5	10.0
Lymphadenopathy	3	6.0
Cyanosis	2	4.0
Clubbing	2	4.0

systemic findings of AFE patients 10% have hepatomegaly, 14% have splenomegaly, 16% have hepatosplenomegaly, 10% have ascites.

Serum LDH raised in 36% patients and 64% have normal LDH levels.

**DISCUSSION AND CONCLUSION:**

The current study highlighted the following findings:

- The mean age of presentation in current study was between 30 - 40 years.
- This study comprise of 50 patients. Out of which males constituted 62% and females were 38%
- The common presenting symptoms were fever (82%), Headache (58%) and altered sensorium (38%).
- Among 50 patients with meningoencephalitis, nine patients did not have fever during the course of illness. In these 9 patients, one patient had cryptococcal meningitis, one patient had cerebral malaria, one patient had neurocysticercosis, two patients had tuberculous meningitis, 4 patients had viral meningitis;
- In our study, headache was present in 58% of patients.
- In our study altered sensorium present in 38% of cases
- Convulsions was present in 20% of people in our study group.
- Neck rigidity was seen in 52% patients in our study. 24 patients did not have neck stiffness at all.
- This indicates that absence of fever or neck stiffness does not exclude the possibility of infectious meningoencephalitis.
- Hypotension was seen in 10% of patients in our study.
- Among 50 patients in the study presented with acute meningo encephalitis 14 patients had acute pyogenic bacterial meningitis, 23 patients had acute viral meningoencephalitis. 6 patients had acute presentation of tuberculous meningitis. 1 patient was diagnosed as Cryptococcal meningitis and remaining 1 had cerebral malaria 3 has leptospirosis and 2 patient has rickettsial disease.

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