



Clinical Profile and Outcome of Japanese Encephalitis in children Admitted with acute Encephalitis Syndrome in a tertiary Care hospital in Gaya, India

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Abstract

Acute encephalitis syndrome (AES) is an important cause of mortality morbidity in children. We undertook the study for better understanding of clinical profile and outcome of AES in our settings. We retrospectively evaluated 151 Patients of AES admitted in our institute from June 2016 to Nov 2016 by evaluating their outcomes using the Glasgow Outcome Scale (GOS). Among 151 cases AES patients, 40(26.4%) were recovered completely (GOS V), while 68(45.5%) case had neurological sequelae (GOSII-IV) with a wide range of severity varying from mild to severe at the time of discharge. 43 (28.4%) patient died in the hospital (GOS I). Use of mechanical ventilation, lower Glasgow coma score, and concurrent seizures are predictors for a poor outcome.

Introduction

Japanese encephalitis is the most Prevalent and significant mosquito borne viral encephalitis of man. Occurring with an estimated 30,000 to 50,000 of cases and 15000 death annually⁽¹⁻³⁾. about 20 to 30% of JE Cases are fatal. 30-50% result in Permanent Neuro Psychiatric Sequelae⁽³⁻⁴⁾. JE is characterized high fever, uncousciouness seizure, focal Neurological deficit, sign of Meningeal Irritation. etc. Climatic conditions, abundance of Potential Mosquito vectors, amplifying hosts, Agricultural Practices and socio cultural behavior of the People are conducive Enviroment to spread JE in the state. During the rainy seasons ie June to August the incidence of the disease reaches its Peak. JE virus cannot usually be isolated from clinical specimens because of low levels of Viremia and rapid development of Neutralizing

antibodies⁽⁵⁾ The detection of JE virus specific IgM by IgM Captive-enzymelinked Immuno-sorbent assay (Igm-captive ELISA) has been accepted as the standard for serological diagnosis⁽⁶⁾ The Presence of JE virus specific IgM in cerebrospinal fluid is considered to be a sign of JE virus infection of the central Nervous system. CSF is the Preferred sample for diagnosis of JE because it anti JE IgM is detected in the CSF. This confirms infection of The central nervous system with JEV⁽⁷⁾.

Material and Methods

Children with AES upto 12 years of age who admitted in our pediatrics ward of A.N.M. Medical College & hospital Gaya India were included in this study during June2016 to Nov 2016. most Patients are referred to this apex level

institute from periphery because of lack of neuroimaging and intensive care facilities in the periphery.

For investigating AES cases, WHO case definition was adopted. Clinically a case of AES is defined as fever or recent history of fever with change in mental status (including confusion, disorientation, coma, or inability to talk) and/or new onset of seizures (excluding simple febrile seizures). Other early clinical findings could include an increase in irritability, somnolence or abnormal behavior greater than that seen with usual febrile illness.^(8,9)

Such Patients were excluded if they : (a) had other severe disease, such as severe infection other than in the central nervous system, malignancy, brain infarction or cerebral hemorrhage, malaria; (b) a diagnosis of delirium or encephalopathy secondary to sepsis, toxins, or metabolic causes.

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The Outcome of Patients was graded with a functional outcome score (Glasgow Outcome Scale, GOS) as follows:

I death; II severe sequelae greatly impairing function and incompatible with independent living; III moderate sequelae mildly affecting function (including seizures), but compatible with independent living; IV minor sequelae including altered personality or clinical signs not affecting functions; V full recovery and normal neurologic examination finding⁽¹⁰⁾

Results

151 Clinically suspected AES cases Admitted in A.N.M M.C.H Gaya during the Period June 2016 to Nov 2016 were included in the Study. out of 151 cases of AES 35 Patients (23.1%) were JE and 116 Patients (76.8%) were non_JE. The JE cases were confirmed following detection of JEV specific IgM antibody either in CSF or serum. Among the JE positive patients 10 were diagnosed by only serum testing positive for anti-JEV IgM antibodies and 5 was identified following detection of anti-JEV IgM antibodies in CSF only. In 20 AES Patients both serum and CSF were

positive for JEV specific IgM antibody. Among the JE positive case 15 (42.8%) were male 20 (57%) were female. The predominant age group affected was 3 to 12 years and the youngest child affected was 6 months old. Majority of the patients were from the rural area and belonged to low socioeconomic group. Most of the children were not vaccinated against JE.

Among 151 AES patients. 40(26.4%) were recovered completely (GOS V) while 68 (45.5%) cases had neurological sequelae (GOS II-IV) with a wide range of severity varying from mild to severe at the time of discharge, 43(28.4%) patient died in the hospital (GOS I).

Discussion

This study retrospectively analyzed data of 151 patients diagnosed with AES in a tertiary care hospital from June 2016 to Nov 2016. The etiological agent of AES is varied. Viral agents that may be encountered in AES in an epidemic form include Japanese encephalitis, Which is a major public health problem because of large endemic areas in the country, the high case fatality rate (20-30%) and frequent residual neuropsychiatric damage (50-70%)⁽¹¹⁾

The present study demonstrates that JE is one of the leading forms of viral encephalitis of children in this part of the Country because around 23.1% of children with AES admitted in our institution were diagnosed as confirmed JE. Similar study carried out in Cuddalore district, Tamil Nadu also reported 29.3% patients with JE in hospitalized AES children⁽¹²⁾. In our study, children mostly affected were from rural areas (85%) and belong to low socioeconomic group (72%). This correlated well with the earlier studies where the patients were children of farmers or farm laborers of low socioeconomic group residing in rural areas⁽¹³⁻¹⁴⁾. This may be due to favorable epidemiological factors like presence of water logged paddy field supporting profuse breeding of vector mosquitoes, piggeries in close proximity to residence, nonuse of bed nets and outdoor playing habits of children.

Among the clinical presentation, fever, altered sensorium, seizures and headache were the most common symptoms observed in this study. In children similar manifestation was also noted in earlier studies.⁽¹⁵⁾

In our study, 45.5% AES patients had neurological sequelae at the time of discharge, while 28.4% had died in hospital. Mortality was associated with GCS within 3 to 8. Neurological sequelae in AES are the common observation⁽¹⁶⁾

Our study corroborates with the findings A fowler et al study which indicates sequele at discharge in 60% of the patients.⁽¹⁷⁾

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