e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2022; 14(9); 454-458

Original Research Article

Clinical Outcome in Children Suffering from AES: An Observational Study

Sunil Kishore[1], Manoj Kumar[2], Shalini Sinha[3]

[1]Assistant Professor, Department of Pediatrics, IGIMS, Patna, Bihar, India
[2]Department of Pediatrics, SMO, Hajipur, Bihar, India
[3]Eye Surgeon, MO, SDH, Danapur, Bihar, India

Received: 10-07-2022 / Revised: 13-08-2022 / Accepted: 06-09-2022
Corresponding author: Dr Manoj Kumar
Conflict of interest: Nil

Abstract

Objective: Acute encephalitis syndrome is a big reason why people get sick and die in India. Even though it was thought that Japanese encephalitis virus (JEV) was a major cause of acute encephalitis syndrome, more cases of non-Japanese encephalitis virus are being reported. Different things happen to people with acute encephalitis syndrome.. Our study was designed to study the clinical profile and outcome of patients with acute encephalitis syndrome.

Methods: The record of patients admitted with diagnosis of acute encephalitis syndrome, They were classified clinically as meningitis, encephalitis and meningoencephalitis. The clinical details and reports of the patients were recorded and analyzed.

Results: Less than 1 year and 3-7 years children were found 19 (31.6%) and 20 (33.4%). Male (75%) was higher than female (25%). Rural residency was higher 81.7%. Meningeal signs were 91.7% followed by motor deficit (66.7%), cranial nerve involvement (25%) and involuntary movements (16.7%). Total mortality was found in 25% children.

Conclusion: Acute encephalitis syndrome is still a major public health problem in India. Few of these patients have Japanese Encephalitis.

Keywords: Japanese Encephalitis, children, Acute encephalitis syndrome

Introduction

Viral encephalitis is a widely spread illness that adversely impacts public health, endangering roughly half of the world's population. [1] It may be sporadic like herpes simplex encephalitis (HSE), or epidemic such as Japanese B encephalitis (JE) (JE). The etiological factors are various, and clinicians treating such children frequently feel hampered by the lack of availability of diagnostic tests for most of these agents. In affluent nations, 50–60 percent of survivors with viral encephalitis with unambiguous etiologies had a bad prognosis following long-term follow-up. [2, 6]

Currently, pathogen identification is not frequently employed for clinical diagnosis and treatment of viral encephalitis in India; the diagnosis is mostly dependent on clinical data and ancillary examination of patients. [7, 8] In addition, research indicates that only 30–40% of encephalitis

cases can be identified pathogenically, with Japanese encephalitis (JE) being the most prevalent cause in India. [9, 10] And the prognosis was bad for more than half of pathogenically confirmed cases of viral encephalitis. [11] Japanese encephalitis (JE), a leading cause of AES in our continent, affects about 50,000 people and causes10,000 deaths each year.10–30% of individuals with clinically confirmed viral encephalitis have a dismal prognosis. Nearly all Indian states, with the exception of Jammu and Kashmir, Himachal Pradesh, and Uttaranchal, have recorded cases of Japanese encephalitis. [12] From July through October each year, the North-eastern region of India has been seeing repeated outbreaks of Japanese encephalitis of varying severity. [13]

The history of AES in India has paralleled with that of the Japanese encephalitis virus (JEV) since the first report in 1955 from Vellore, Tamil Nadu. The first outbreak of JEV was reported in Bankura district, West Bengal in 1973. There after sporadic cases of AES and outbreaks have been the leading cause of premature deaths due to the disease in India. Based on various surveillance reports and outbreak investigations, Joshi et al. classified the history of AES in India into 3 phases: (a) period before 1975 when a few cases with JE aetiology were identified; (b) between 1975 and 1999 when more JEV cases were reported with frequent outbreaks that resulted in the development of JE endemic regions near the Gangetic plains and in parts of Deccan and Tamil Nadu; (c) between 2000 and 2010, a dramatic change was observed in the AES scenario, which saw the rise in non-JE outbreaks mostly caused by viruses such as Chandipura virus (CHPV), Nipah virus (NiV), and other enteroviruse.

In India, AES has been mostly linked to viruses, however additional possible causes, including bacteria, fungi, parasites, Spirochetes, Leptospira, Toxoplama, specific chemicals, and toxins, have been recorded in recent decades. Japanese Encephalitis is one kind of AES that is caused by a virus spread mostly by female mosquitoes of the Culex species. This virus is carried by animals, including birds and pigs. Initially, it was believed that Japanese Encephalitis and AES cases are seasonal in nature; however, a tertiary care center with a large catchment area that includes the whole state of Bihar, portions of Jharkhand, Uttar Pradesh, and Nepal.

Hence the study was planned to assess the clinical profile of the children affected by Acute Encephalitic Syndrome (AES).

Methodology

The study was planned in Department of Paediatrics in IGIMS, Patna, Bihar for one year. The data from the 60 patients were collected and presented as below.

Methodology

Inclusion Criteria:

All the children who were admitted in the Pediatric ward over a period of one year with clinical features of fever, seizures, altered sensorium were included in the study.

Exclusion Criteria:

Cases which turned out to be positive for Bacterial / TB meningoencephalitis, febrile seizures were excluded from study.

All the patients were undergone CSF analysis, Fundus examination, Monteux test, Chest X - ray, CT Brain, MRI Brain, EEG, Virological studies.

Results

Table 1: Age wise distribution of the study

	No. of Cases	Percentages
Age		
Less than 1 year	19	31.6
1-3 years	15	25
3 – 7 years	20	33.4
7 - 10 years	16	26.7
Gender		
Male	45	75
Female	15	25
Geographic Origin		
Rural	49	81.7
Urban	11	18.3

Less than 1 year and 3-7 years children were found 19 (31.6%) and 20 (33.4%). Male (75%) was higher than female (25%). Rural residency was higher 81.7%.

Table 2: signs wise distribution of the study

	No. of Cases	Percentages
Speech disturbance	8	13.3
Cranial nerve involvement	15	25
Motor deficit	40	66.7
Cerebellar signs	4	6.7
Involuntary movements	10	16.7
Meningeal signs	55	91.7
Papilledema	15	25

Meningeal signs was 91.7% followed by motor deficit (66.7%), cranial nerve involvement (25%) and Involuntary movements (16.7%)

Table 3: mortality wise distribution of the study

	No. of Cases	Percentages
Yes	15	25
No	45	75

Total mortality was found in 25% children.

Discussion

In children, viral encephalitis is a leading cause of death and morbidity. Varicella zoster virus, Mumps, Human herpes virus 6 and 7, Epstein Barr virus, and, most critically, Herpes simplex virus are responsible for sporadic encephalitis. Herpes simplex virus encephalitis (HSE) is the most prevalent cause of fatal sporadic viral encephalitis in western nations, with an incidence of 1-3/million [14]. There is less evidence about the percentage of AES cases attributable to HSE in India. Mortality is significant in untreated individuals (70 percent), but is reduced to 30 percent in patients treated promptly with the antiviral medicine Acyclovir (risk of sequelae is around 11 percent) [15]. In children, viral encephalitis is a leading cause of death and morbidity. Varicella zoster virus, Mumps, Human herpes virus 6 and 7, Epstein Barr virus, and, most critically, Herpes simplex virus are responsible for sporadic encephalitis. Herpes simplex virus encephalitis (HSE) is the most prevalent cause of fatal sporadic viral encephalitis in western nations, with an incidence of 1-3/million [14]. There is less evidence about the percentage of AES

cases attributable to HSE in India. Mortality is significant in untreated individuals (70 percent), but is reduced to 30 percent in patients treated promptly with the antiviral medicine Acyclovir (risk of sequelae is around 11 percent) [15].

WHO uses the term acute encephalitis syndrome (AES) for syndromic monitoring in the context of Japanese encephalitis (JE) [16] . A person of any age, at any time of year, with an immediate start of fever and a change in mental state (including symptoms such as confusion, disorientation, unconsciousness, or inability to speak) AND/OR new beginning of seizures is clinically diagnosed as Acute Encephalitis Syndrome (excluding simple febrile seizures). Acute encephalitis syndrome is a medical and neurological emergency that requires prompt consideration of essential concerns, such as the provision of immediate life support, the diagnosis of the underlying cause, and the initiation of particular medication when possible. [17]

In our study, we attempted to determine the incidence and etiology of Viral Encephalitis, as well as its relationship to age, gender, geographical distribution, and seasonal variation, as well as its clinical manifestations and mortality, morbidity, and neurological sequelae, in order to make recommendations to the public health authorities. We also examined the JE positivity among the clinical acute encephalitis syndrome (AES) cases referred to our center based on serology and imaging studies, as well as rural vs. urban predominance.

This information would help pediatricians evaluate and treat hospitalized kids who might have viral encephalitis. It would also help public health officials keep an eye on acute encephalitis so they can come up with a plan for our region to reduce the number of kids who get this terrible neurological disease by taking good preventive steps.

Conclusion

Viral encephalitis is a major reason why children die or become sick. There have been Japanese encephalitis (JE) epidemics in many parts of our country. In recent years, the number of cases of JE has been going up. It looks like JE could become one of the biggest public health problems in India, given the number of children who are at risk, the number of JEV infections among encephalitic children, the wide spread of JE-prone areas, and the spread of the disease into areas where it is not common.

References

1. Hinson VK, Tyor WR. Update on viral encephalitis. J Curr Opin Neurol 2001; 14(3):369-74.
2. McGrath N, Anderson NE, Croxson MC, Powell KF. Herpes simplex encephalitis treated with acyclovir: diagnosis and long-term outcome. J Neurol Neurosurg Psychiat. 1997; 63(3):321-6.
3. Utley TFM, Ogden JA, Gibb A. The long-term neuropsychological outcome of herpes simplex encephalitis in a series of unselected survivors. J Cognit Behav Neurol. 1977;10(3):180-18
4. Raschilas F, Wolff M, Delatour F, Chaffaut C, De Broucker T, Chevret S, et al. Outcome of and prognostic factors for herpes simplex encephalitis in adult patients: results of a multicenter study. Clinic Infect Diseas. 2002;35(3):254-60.
5. Erlanger TE, Weiss S, Keiser J. Past, present, and future of Japanese encephalitis. J Emerg Infect Dis. 2009 ;15(1):1
6. Solomon T. Control of Japanese encephalitis-within ourgrasp? N Engl J Med. 2006;355(9):869
7. Solomon T, Hart IJ, Beeching NJ. Viral encephalitis: a clinician's guide. J Pract Neurol. 2007;7(5):288-305
8. Stahl JP, Mailles A, Dacheux L. Epidemiology of viral encephalitis in

2011. J Me´d et Mal Infect 2011;41(9) :453-46
9. Wang WS, Liu CP. The clinical presentation, diagnosis, treatment, and outcome of encephalitis: five years of experience at a medical center in Northern Taiwan. Int J Gerontol. 2011; 5(1):9-12.
10. Wang L, Hu W, Magalhaes RJS. The role of environmental factors in the spatial distribution of Japanese encephalitis in mainland China. Environm Int. 2014; 73:1-9.
11. Jing Zhou, Xinyue Qin. Clinical features and influencing factors of prognosis in patients with viral encephalitis (in Chinese). J Chin Gener Prac Chin. 2012;15(34):3975-7
12. Arunachalam N, Rajendran R. Studies on Japanese encephalitis in Kurnool district, Andhra Pradesh. CRME Annual Report.
13. Dutta P, Khan SA, Khan AM, Borah J, Sarmah CK, Mahanta J. The effect of insecticide-treated mosquito nets (ITMNs) on Japanese encephalitis virus seroconversion in pigs and humans. The Am J Tropic Medic Hyg. 2011;84(3):466-72.
14. Steiner I. Herpes simplex virus encephalitis: new infection or reactivation? Curr Opin Neurol. 2011; 24:268-74.
15. Granerod J, Ambrose HE, Davies NW, Clewley JP. Walsh AL, Morgan D. et al. Causes of encephalitis and differences in their clinical presentations in England: amulticentre, population-based prospective study. Lancet Infect Dis, 2010; 10:835-44.
16. World Health Oraganisation. Acute Encephalitis Syndrome. Japanese encephalitis surveillance standards. January 2006. From WHO-recommended standards forsurve illance of selected vaccine-preventable diseases. WHO/V&B/03.01.
17. Mansour M. B., & Ahmedana S. E. Statin use and Type 2 Diabetes Incidence. Journal of Medical Research and Health Sciences, 2021;4(1): 1139–1145.