

Radiological Profile of Patients with Status Epilepticus from Rural Area.

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Abstract :

Status epilepticus is a medical emergency associated with significant morbidity and mortality. Its aetiology varies with age, time and other associated factors. The present study was carried out with an objective to find out the radiological profile of status epilepticus. Out of 50 patients diagnosed on clinical grounds as status epilepticus, 49 patients were subjected to computed tomography (CT)/magnetic resonance imaging (MRI) scan. CT/MRI examination revealed normal findings in 16 (32.65%) cases and abnormal findings in 33 (67.35%) cases. Ring enhancing lesion (20.40%) was found to be the most common radiological finding, and cerebral venous sinus thrombosis (CVST) and calcific lesion (2.04% each) were found to be the least common radiological findings. Results indicate that in absence of suitable diagnostic tests for confirmation of aetiology, CT /MRI helps in accurate evaluation of aetiology of status epilepticus.

Key words : Status epilepticus, Radiological profile, Aetiology

Introduction : Status epilepticus (SE) is a major neurological emergency associated with high morbidity and mortality, especially when it is not treated effectively in time. Although, the diagnosis of status epilepticus is not difficult when motor signs are overt, but these motor signs are not seen in most of the clinical types of status epilepticus such as subtle status epilepticus, complex partial status epilepticus and Non-convulsive status epilepticus. These clinical types of status epilepticus still pose serious diagnostic challenges and require special investigations to confirm the diagnosis of status epilepticus^[1,2].

The present study was carried out with an objective to find out the radiological profile of status epilepticus to evaluate the accurate diagnosis of status epilepticus.

Patients and Methods : The present study was carried out in a tertiary care hospital. A total of 50 cases admitted in Emergency Ward and ICU, diagnosed on history and clinical grounds as status epilepticus were included in the study. The patients with non-convulsive status epilepticus, pseudoseizures and patients below 12 years of age were excluded from the study. Out of 50 cases, 49 cases were subjected to computed tomography (CT) scan. Sixteen cases out of 49, which could not be diagnosed substantially by CT scan were subjected to magnetic resonance imaging (MRI) of brain with or without venography after controlling the seizures.

Results and Discussion : Status epilepticus is a common medical emergency, which accounts for 1% – 8% of all the hospital admissions for epilepsy^[3]. The duration of SE and its etiology have been the important predictors of its outcome.

In this study, maximum number of cases were found in the age group of 31-40 years (n=15) followed by 21-30 years age group (n=9) and 11 – 20 (n=8) (Table 1).

Table 1: Age Distribution

Age in years	No. of patients	Percentage (%)
11-20	8	16.32
21-30	9	18.36
31-40	15	30.61
41-50	5	10.20
51-60	4	8.16
61-70	5	10.20
71-80	3	6.12
	49	100

Out of the 49 cases, 27 (55.10%) were male and 22 (44.90%) were females. Male to female ratio was found to be 1.2:1 (Table 2).

Table 2 : Sex Distribution

Sr. No.	Sex	No. of patients	Percentage (%)
1	Male	27	55.10
2	Female	22	44.90
	Total	49	100

The age of patients varied from 13 – 75 years with the mean age of the patients with SE was 40 ± 17.2 years (13–75 years), 16% were in the younger age group (11-20 years) and 48% fell into the young adult group (21-40 years). These findings are in agreement with earlier studies from the developing countries, wherein a higher proportion of the patients with SE were either children or young adults (20–40 years). Age is considered as important factor because it has relation with the aetiology and type of status epilepticus. Infectious aetiology has been reported to be more common in children and non-infectious causes are more common in adults^[4, 5]. The male to female ratio of 1.2:1 in the present study is similar to population based studies reported earlier^[6, 7]. The higher prevalence rate of 55.10% is similar to earlier studies^[8]. This may be attributed to the fact that early and quick medical attention is generally provided to males in our society.

CT/MRI examination revealed normal findings in 16 (32.65%) cases and abnormal findings in 33 (67.35%) cases. Ring enhancing lesion (20.40%) was found to be the most common radiological finding, followed by meningo -encephalitis and haemorrhagic CVA (10.20% each), tuberculoma/TBM, focal edema and non-haemorrhagic infarct (6.12% each) and gliosis/old scar (4.08%). CVST and calcific lesion (2.04% each) were found to be least common radiological findings (Table 3).

Table 3: CT/MRI profile of SE patients

Sr. No.	CT/MRI findings	Patients diagnosed with CT scan brain	Patients diagnosed with MRI	Total No. of Cases
1.	Nothing abnormal detected	14	02	16(32.65)
2.	Ring Enhancing lesions	06	04	10(20.40)
3.	Hemorrhagic CVA	05	00	05(10.28)
4.	Meningo -encephalitis	00	05	05(10.28)
5.	Tuberculoma/TBM	02	01	03 (6.12)
6.	Non-hemorrhagic infarct	02	01	03 (6.12)
7.	Focal edema	02	01	03 (6.12)
8.	Gliosis/ Old scar	02	00	02 (4.08)
9.	Calcific lesion	01	00	01 (2.04)
10.	CVST	00	01	01 (2.04)
Total		33 (67.34)	16 (32.66)	49

Note – Figures in parenthesis indicate percentages

Among the 10 cases showing ring enhancing lesion, six had solitary cysticercus granuloma, while four had multiple cysticercus granulomas. Out of five cases showing meningo-encephalitis, two SE patients were suspected to be cases of Japanese encephalitis on the basis of bilateral thalamic hyper intensities on MRI and two were found to have generalized white matter oedema on MRI, which were grouped as nonspecific meningo-encephalitis. One SE patient was suspected to be a case of herpetic encephalitis due to a temporal lobe hyper intensity on MRI and CSF abnormality (Table 3).

The normal CT/MRI scan results in 32.65% patients with SE and abnormal CT/MRI reports in 67.35 SE patients are more or less comparable with earlier reports^[5, 8]. In our study, accurate diagnosis could not be made in 16 (32.66%) cases and for further confirmation we need to go for MRI studies. Similar findings have been reported by Kulshrestha et al. [8]. They also could not make confirmatory diagnosis in 27.22% cases in their study. These results show that CT alone may not be an accurate radiological tool for diagnosis of almost all cases of SE. These results also indicate that MRI has advantages over CT scan and is the most helpful radiological tool in the diagnosis of SE.

It is concluded from the results of the present study that in absence of suitable diagnostic tests for confirmation of aetiology of SE, CT /MRI helps in accurate evaluation of aetiology of status epilepticus.

Conflicts of Interest : None to declare

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