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Clinical profile of new onset seizure disorder in patients at Krishna hospital

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Abstract

Aim: To determine and compare the superiority of various investigative modalities in the diagnosis of seizure disorder.

Material and Method: A detailed clinical examination was done. All the patients were also interviewed and examined by senior physicians to check and confirm the clinical findings. Routine Biochemical examination including serum calcium, test for HIV, along with CXR and ECG were done. Computed Tomography or MRI brain of all patients was done. The final etiological diagnosis was arrived at after taking into consideration all the clinical and investigative data. The data obtained from the study was compared with studies carried out in the past. The conclusions drawn from the study have been mentioned subsequently.

Result: In the age group of 21-30 years, RDEL was the commonest etiology seen in 6 out of 21 patients that is 28.57% in the age bracket 61-70 years, scar epilepsy was the commonest cause seen in 8 out of 27 patients that is 29.63%. GTCS was seen in 100% of the patients where seizure was attributed to metabolic abnormalities. Partial seizures predominated in the patients with the etiology of SOL/metastases (90.9%), scar epilepsy (80%) and RDEL (62.5%).

Conclusion: Patients invariably present with GTCS. RDEL is more commonly seen in the younger age group of 21-30 years. Patients with SOL/Metastases present most commonly with complex partial seizures.

Keywords: Metabolic abnormalities, seizure

Introduction

Epilepsy known from time immemorial, has been shrouded in mysticism, till very recently, patients being considered either divine or more frequently socially discriminated against. The word seizure is derived from the Latin word *sacrie* which means "to take possession of" or 'take hold of'. A 'Seizure' is a paroxysmal event due to abnormal excessive hypersynchronous discharge from an aggregate of CNS neurons^[1]. Epilepsy describes a condition in which a person has recurrent seizures due to a chronic underlying process^[1, 3].

Many forms of generalized epilepsy have a strong genetic component and in most, neurological functions are normal. Seizures that begin in a focal region of the cerebral cortex, often within one lobe of the brain are termed as partial seizures^[5]. These may remain focal throughout the duration of the seizure or may propagate through various regions of the hemisphere and called as secondary generalization. Partial epilepsies comprise about 50% of new seizures in <40 years and almost 75% as age increases to 75 years^[3]. The signs and symptoms associated with partial seizures depend on the cortical region involved, like motor, sensory, autonomic or psychic. It can be simple partial or complex partial seizures. When it lasts continuously more than 30 minutes or recurrent in nature without an interval of neurological recovery, then it is termed as focal status epilepticus. The diagnosis of epilepsy includes medical history, clinical evaluation, EEG and neuroimaging. It was only in the late 70's as patients of epilepsy^[6] were subjected to CT scanning and lesions have been reported to occur in as high as 26% of all cases of focal epilepsies. These lesions were subsequently called as ring/disc enhancing lesions, RDELs^[4].

Most have partial epilepsy with secondary generalized tonic seizures. The prognosis of epilepsy depends upon the underlying cause. Focal epilepsies have an underlying structural brain lesion, which can be diagnosed by imaging methods and treated accordingly.

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Most of the refractory epilepsies are focal in origin and nowadays new surgical methods are available for the cure of epilepsy [7].

Material and Method

A prospective study was carried out in 100 patients with new onset seizure disorder admitted in the medical wards of Krishna Hospital. Patients more than 18 years and below 70 years were included in the study. In all cases relevant clinical data was sought, a detailed history was obtained from the patient and a reliable eye witness as regards to feature of each episode of seizure, the frequency, presence of aura and other neurological symptoms.

A detailed clinical examination was done. All the patients were also interviewed and examined by senior physicians to check and confirm the clinical findings. Routine Biochemical examination including serum calcium, test for HIV, along with CXR and ECG were done. Computed Tomography or MRI brain of all patients was done. The final etiological diagnosis was arrived at after taking into consideration all the clinical and investigative data. The data obtained from the study was compared with studies carried out in the past. The

conclusions drawn from the study have been mentioned subsequently.

Result

Males were the commonly affected group, with M: F ratio of 1.38:1 26% of the patients were in the age group of 61-70, followed by 22% in 21-30, 21% in 41-50 respectively GTCS were seen in 51% of the patients whereas partial seizures were seen in 49% of the patients. Complex partial was the commonest form of seizure seen in 55.11% of the patients presenting with partial seizures. GTCS was the commonest type of seizure seen in all age groups except in the age bracket 61-70 where complex partial seizure was the dominant type.

55.17% of the male patients had GTCS, whereas partial seizures were seen in 44.83% of the patients GTCS was the most common form of convulsions seen in all age groups except in the age bracket 61-70 where complex partial type of seizure was commoner.

Hypertension was the commonest risk factor seen in 24% of the patients followed by Diabetes Mellitus and Alcoholism seen in 9% and 7% of the patients respectively.

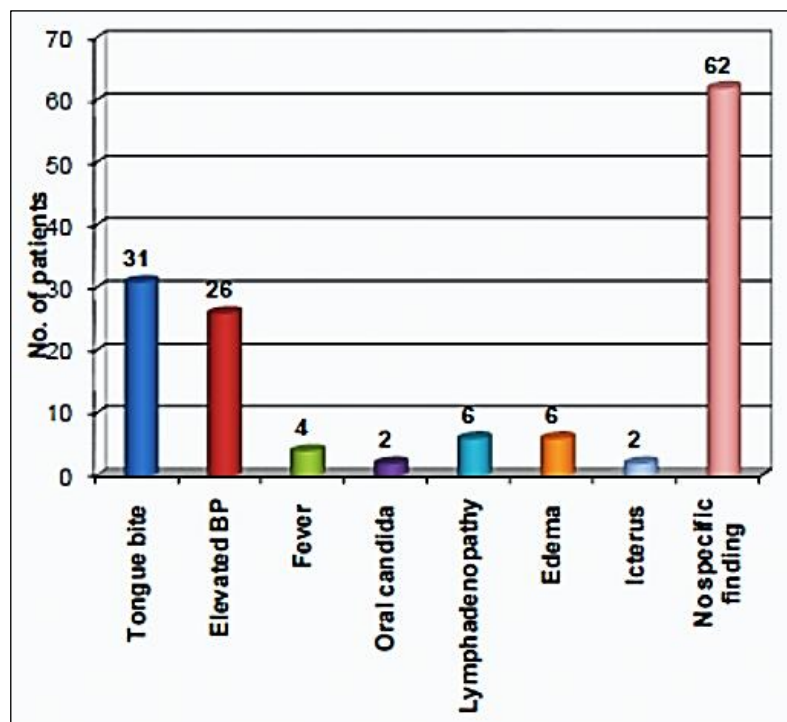


Fig 1: General examination findings

Tongue bite was seen in 31% of the patients followed by elevated Blood Pressure seen in 26% of the patients 62% of the patients had no specific general examination findings.

72% of the patients had altered sensorium, followed by motor deficit and fundus abnormalities seen in 24% and 17% of the patients respectively. 25% of the patients had no specific CNS findings.

41 patients had undergone MRI brain imaging MRI imaging showed abnormality in 85.37% (35 out of 41) of the patients RDEL, Cerebrovascular etiology and Gliosis, each were seen in a frequency of 17.07% 14.63% (6 out of 41) patients with seizures had normal MRI. In the age group of 21-30 years, RDEL was the commonest etiology seen in 6 out of 21 patients that is 28.57%. In the age bracket 61-70 years, scar epilepsy was the commonest cause seen in 8 out of 27

patients that is 29.63%. GTCS was seen in 100% of the patients where seizure was attributed to metabolic abnormalities. Partial seizures predominated in the patients with the etiology of SOL/metastases (90.9%), scar epilepsy (80%) and RDEL (62.5%).

Discussion

In our study of 100 patients 58% were male and 42% female with a male to female ratio of 1.38:1 which is slightly less than the study of 1176 patients of epilepsy by Goel *et al* (2009), where a 2:1 male preponderance was found. In various studies carried out in different parts of the world, epilepsy was found to be slightly more common in men than in women but the sex specific prevalence is not, in general, significantly different [7].

In studies carried out by R Sridharan (2002) [3], Radhakrishnan *et al* (2000) [70], again it was found that the differences in prevalence of seizure disorder between males and females was not statistically significant. According to WHO revised criteria, 200110, there is no sex difference in epilepsy. In our study, there wasn't much difference in the incidence of epilepsy in different age groups with the highest incidence, 26% seen in the age group 61-70 followed by 22% in the age group, 21-30 which correlates with the study done in Shanghai 71, which showed two prevalence age peaks: one between 10 and 30 years old and one in people over 60 years old [8].

In a study of 97 patients by Nikanfar *et al* (2005) [72], twenty-six (26.8%) patients were in the age range of 50-59, 31 (32%) in the range of 60-69, 33 (34%) in the range of 70-79 and 7 (7.2%) in the range of 80-89. Hauser, Annegers & Kurland (1993) [73], found that Incidence of epilepsy reaches a minimum in early adulthood (~25/100,000), but then increases during late adulthood to a second peak in the elderly [9].

Lavados *et al* (1992) discovered that in some developing countries, the age-specific incidence was quite different from developed countries, with the peak incidence of epilepsy occurring in early adulthood and no increase in the elderly. Age-specific incidence rates are now changing, with a decrease in younger age groups and an increase in persons above 60 years. The prevalence of epilepsy in person's age 65 or more is twice that in young adults and it continues to increase with age [2].

Generalized tonic clonic seizures were seen in 51% of the patients and partial seizures in 49% of the patients. 55.1% (27 out of 49) of all the patients presenting with partial seizures had complex partial seizures, whereas simple partial and partial seizures with secondary generalization were seen in 24.48% (12 out of 49) and 20.41% (10 out of 49) of the patients respectively. GTCS was the commonest form of seizure seen in all age groups except the age bracket of 61-70 where complex partial was commonest amongst both male and females [10].

In another community based survey in Uttarakhand, India by Goel *et al* (2009) [69], the most common seizure type was generalized tonic-clonic seizures in 76 (53.9%) out of 141 patients. In a study of Prevalence and Pattern of Epilepsy in Rural Kashmir, India by Koul *et al* [76], 78.9% cases had generalized seizures. In a Japanese study by Yoshino Ahide (2007) [77] of epilepsy in the elderly, the most common seizure manifestation was atypical complex partial seizures [11].

In the epidemiological survey by R Sridharan (2002) [3], in the new cases of epilepsy, 50% have seizures of partial origin and 50% of generalized origin before the age of 40. After 40 years, the proportion of partial epilepsy rises to 75% by the age of 75. Our study very well correlates with the aforementioned studies [12].

In patients of stroke, GTCS: partial seizures were seen in almost equal frequency i.e. 8: 9. In patients of RDEL, partial form of seizures were seen in 62.5% of the patients.

In patients of scar epilepsy, partial seizures were seen in 80% of the patients. In patients of metastases/ SOL also, partial seizures were seen in 90.9% of the patients.

GTCS was the only form of seizures seen in patients with metabolic abnormalities and also in patients with meningitis/encephalitis [13].

In patients where the etiology of seizures was undetermined, GTCS: partial ratio was equal. According to the study by Nikanfaret *et al* (2005) [72], in northwest of Iran, vascular causes was the most common etiology for epilepsy in late adult life. Ischemic strokes were more common. (Hemorrhagic stroke in 10.3%, ischemic stroke in 44.3%) Tumors, either primary or secondary, accounted for 20% to 50% of the cases of seizures occurring for the first time in late adult life. Partial seizures were found in 27 of 53 patients (51%) with seizures due to cerebrovascular accidents. In patients with space

Conclusion

In our study we come to the conclusion that CVA with Scar epilepsy is the commonest cause of stroke in the elderly and the incidence increases as the age progresses and the presentation is commonly in the form of partial seizures. Metabolic derangement is the second commonest cause of seizures but it is not limited to any specific age group. Patients invariably present with GTCS. RDEL is more commonly seen in the younger age group of 21-30 years. Patients with SOL/Metastases present most commonly with complex partial seizures.

Conflict of Interest: No conflict of interest

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