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RESEARCH ARTICLE

A STUDY OF CLINICAL PROFILE OF SEIZURE DISORDER AT TERTIARY CARE CENTRE – A RETROSPECTIVE CROSS SECTIONAL STUDY

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ABSTRACT

Background*:* A seizure (from the latin word "to take possession of") is a paroxysmal event due to abnormal, excessive, hypersynchronous discharge from an aggregate of central nervous system neurons. ***Aims and Objectives****:* To Study Clinical profile of Seizure disorders at Tertiary health care center. ***Methodology***: This was a cross-sectional study in 1680 patients of seizure disorder in the age group 18 and above years at tertiary health care center of GMC Jammu, General Medicine department during the two years from 2016 to 2018. ***Result***: Out of the 1680 patients, 63.1% were males and 36.9% were females .86.2% (1448 patients) of the study patients ,had generalized tonic clonic seizures, 3.9% (65 patients) had partial seizure with secondary generalization, 4.8% (80 patients) had complex partial seizures and 5.2% (87 patients) had simple partial seizures. 25.5% (428 patients) of the cases, no cause could be found in spite of rigorous investigation and they were termed 'idiopathic' or 'cryptogenic'. 12.3% (206 patients) of the cases were due to space occupying lesions. 7.5% (126 patients) had electrolyte imbalance, 18.8% (316 patients) had metabolic derangements. Cerebrovascular accidents constitute the most common cause as 30.4 % of patients. ***Conclusion***: It can be concluded from our study that most common type was generalized tonic clonic seizures (GT CS) and most common etiology was stroke followed by idiopathic, metabolic, Space occupying lesion, electrolyte imbalance, metabolic derangements and infections.

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INTRODUCTION

A seizure is a paroxysmal event due to abnormal excessive and synchronous neuronal activity in the brain. 5 to 10% of the population will have atleast one seizure, with the highest incidence occurring in early childhood and late adulthood. The incidence of epilepsy is 0.3 – 0.5% in different populations throughout the world and the prevalence of epilepsy has been estimated at 5-10 persons per 1000 (Rupa Dalmia Singh and Shashank Suryavanshi, 2016). The major etiological risk factors were CNS infections, metabolic disorders and cerebrovascular diseases. Seizures can be a presenting feature in tubercular meningitis, which is the most common type of chronic meningitis in India (Badrinath *et al.,* 2016). First episode seizures in adults are usually symptomatic of an underlying etiology. In a study conducted in Mysore, CVA was the most common identifiable cause of seizures followed by SOL and metabolic causes. Mortality is significantly affected by associated comorbid conditions (Srinivas *et al.,* 2003). In Indian subcontinent cerebral venous thrombosis is common in post puerperal women presenting with severe headache, low grade fever and seizures (Prakash and Bansal, 2000). Focal seizures are more common but they can generalize to a life threatening status epilepticus (Jan Stam, 2005). With the advent of modern technologies like CT scan, MRI and CSF serology, the diagnosis of seizure has become more accurate and has changed the course of management. The present study was conducted to know the various etiologies of new onset seizures in adults.

MATERIALS AND METHODS

The present prospective study enrolled 1680 patients presenting with new onset seizures admitted in the medicine department of Govt Medical College and hospital Jammu. All the subjects were informed about the study and a written consent was obtained from all in their vernacular language. Patients presenting with history of new onset seizures were included in the study. Patient and eyewitness were interviewed regarding history, and clinical examination was done as mentioned in proforma. The investigations included haemoglobin level, total count, differential count, ESR, urine routine, blood urea, serum creatinine, blood glucose levels, and estimation of serum electrolytes like sodium, potassium, and calcium. Special investigations like lumbar puncture, serological tests, CT scan brain, MRI-brain, EEG were done in selected cases.

Inclusion criteria: All the participants with age more than 18 years of age admitted with new onset of seizures by history

and having EEG abnormality. Type of seizure was established according to 2010 ILAE classification system of seizures (Prakash and Bansal, 2000).

Exclusion criteria

- Hyperventilation syndrome
- Movement disorders
- Syncope and psychogenic seizures.

Statistical analysis: All the data was arranged in a tabulated form and analysed using SPSS software. The results were expressed as percentage of total.

RESULTS

Out of the 1680 patients, 63.1% were males and 36.9% were females as depicted in Table 1. In the present study 86.2% (1448 patients) of the study patients had generalized tonic-clonic seizures, 3.9% (65 patients) had partial seizures with secondary generalization, 4.8% (80 patients) had complex partial seizures and 5.2% (87 patients) had simple partial seizures as shown in Table 2.

In the present study, majority of patients fall in group of cerebrovascular accident i.e 510(30.4%) patients and no cause could be found in spite of rigorous investigation and they were termed 'idiopathic' or 'cryptogenic' in 428(25.5%) patients. 206 patients (12.3%) of the cases were due to space occupying lesions. 126 patients (7.5%) had electrolyte imbalance, 316 patients(18.8%) had metabolic derangements and 94 patients (5.6%) has infections. Among ICSOL, 96 patients had tuberculomas (46.6%), 68 patients had neurocysticercosis (33%), 42 patients (20.4%) had Tumors (inc: secondaries). In the present study, 126 patients (7.5%) had seizure due to electrolyte imbalance out of which 32 patients (25.4%) had hypomagnesemia, 58 patients (46%) had hyponatremia, and 36 patients (28.6%) had hypocalcemia. In the present study 316 patients (18.8%) had seizure associated with metabolic derangements, among them 106 patients (33.5%) were due to hypoglycemia, 66 patients (20.9%) had alcohol withdrawal, 48 patients (15.2%) had uremic encephalopathy and 24 patients (7.6%) had hepatic encephalopathy. Out of 94 patients (5.6%) with infections having seizures, 38 patients (40.4%) has bacterial meningitis followed by tubercular meningitis in 32 patients (34%) and then viral meningo encephalitis in 24 patients (25.6%).Details shown in Table 3 below.

Table 1. Distribution of the patients as per the sex

Sex	Number of patients (n)	Percentage (%)
Male	1060	63.1
Female	620	36.9
Total	1680	100

Table 2. Distribution of patients as per type of seizure

Type of seizure	Number of patients (n)	Percentage (%)
1.Generalised tonic-clonic seizures	1448	86.2
2.Simple partial seizures	87	5.2
3.Complex partial seizures	80	4.8
4. Partial seizures evoling to secondarily generalised seizures.	65	3.9
Total	1680	100

Table 3. Distribution of the patients as per the cause of seizure

Cause of seizure		Number of patients (n)	Percentage (%)
1.Cerebrovascular accident	A)infarct	48	9.4
	b)Hemorrhage	84	16.5
	c)Old cva with scar epilepsy	210	41.2
	d)Cortical venous thrombosis	120	23.5
	E)SDH	28	5.5
	F)EDH	20	3.9
	Total	510	30.4
2.Space occupying leisons	A)Tuberculoma	96	46.6
	B)Neurocysticercosis	68	33
	C)Tumors (inc -secondaries)	42	20.4
	Total	206	12.3
3.Metabolic	A)hypoglycemia	106	33.5
	B)Hyperglycemia	72	22.8
	C)Uraemia	48	15.2
	D)Hepatic Encephalopathy	24	7.6
	E)Alcohol withdrawal	66	20.9
	TOTAL	316	18.8
4. Electrolyte imbalance	A)hyponatremia	58	46
	B)Hypocalcemia	36	28.6
	C)Hypomagnesemia	32	25.4
	Total	126	7.5
5.Infections	A)bacterial meningitis	38	40.4
	B)Tubercular Meningitis	32	34
	C)VIRAL meningo-encephalitis	24	25.6
	Total	94	5.6
6.Idiopathic		428	25.5
Grand Total		1680	100

Family history of seizure: Out of 1680 patients, 860 patients had family history of seizure.

Sleep deprivation: In present study, 36 patients reported lack of sleep the preceding night.

DISCUSSION

Out of the 1680 patients, 63.1% were males and 36.9% were females. In the present study, 86.2% (1448 patients) of the study patients had generalized tonic clonic seizure, 3.9% (65 patients) had partial seizure with secondary generalization, 4.8% (80 patients) had complex partial seizures and 5.2% (87 patients) had simple partial seizures. These studies are similar to Narayanan *et al.* (2007) Sendil *et al.* (2014) Hirani *et al.* (2016) GTCS was found to be the pre-dominant seizure type (6-8). However Chalasani *et al.* (2015) showed that partial seizure to be predominant in their study accounting for 46% and GTCS accounting for 44 % (Chalasani *et al.,* 2015). In the present study most common cause of seizures was cerebrovascular accident seen in 510 patients (30.4%) followed by 428 patients (25.5%) of the cases, where no cause could be found in spite of rigorous investigation and they were termed 'idiopathic' or 'cryptogenic'. 206 patients (12.3%) of the cases were due to space occupying lesions. 7.5% (126 patients) had electrolyte imbalance, 316 patients (18.8%) had metabolic derangements. Similar to Ashwin *et al.* (2017) they found most common cause of seizure in his study was stroke followed by infection followed by metabolic cause (Ashwin *et al.*, 2017). Sander et al with a larger sample size than present study in UK have reported around 9% of seizures due to alcohol withdrawal (Sander *et al.,* 1990). Also Swati Sunil Jagtap they found the same results in 200 cases which were studied over a three year period (Swati Sunil Jagtap *et al.,* 2017).

Conclusion

It can be concluded from our study that most common type of seizure was Generalised tonic clonic seizure. The most common etiology was stroke followed by Idiopathic, metabolic, Space occupying lesion, electrolyte imbalance and Infections. Old CVA with scar epilepsy was major cause of post-stroke seizures in present study. Hypoglycemia was major cause of seizures due to metabolic cause in present study. Patents with alcohol withdrawal were predominantly affected by GTCS. Participants with calcified granuloma were predominantly affected by focal seizures. Bacterial meningitis was major cause of seizures due to infections in present study.

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