ISSN: 0975-833X

*Available online at http://www.journalcra.com*

*International Journal of Current Research*
*Vol. 8, Issue, 06, pp.33565-33567, June, 2016*

**INTERNATIONAL JOURNAL OF CURRENT RESEARCH**

## RESEARCH ARTICLE

# CLINICAL PROFILE OF NEW ONSET SEIZURES IN ELDERLY POPULATION: A STUDY AT TERTIARY CARE CENTRE IN NORTHERN PART OF INDIA

***Mohini, Shailender Rawal, Surekha Dabla and Manoj Yadav**

Asstt Prof, Department of Medicine, Pt B D Sharma PGIMS Rohtak, Haryana, India

**ARTICLE INFO**

***Article History:***
Received 14th March, 2016
Received in revised form
27th April, 2016
Accepted 15th May, 2016
Published online 30th June, 2016

***Key words:***
Epilepsy,
Elderly,
Generalized Tonic Clonic Seizure.

**ABSTRACT**

**Purpose:** Epidemiologic studies have shown that the incidence of epilepsy is the highest in the elderly population. As the elderly constitutes the most rapidly growing population in our country, epilepsy in this group has become an important health issue. To identify the characteristics of epilepsy in the elderly, etiology and effect of antiepileptic drugs on seizure control, we studied elderly population at tertiary care centre in this northern part of India for new onset of seizures.

**Methods:** We studied all the patient with history of new onset of seizures with age above 60 years who attended neurology clininc over a period of year. All patients underwent detailed clinical history and physical examinations, various blood investigations, magnetic resonance imaging and/or computed tomography of Brain, and electroencephalogram (EEG). All patients were started on appropriate antiepileptic drugs and monitored for control of seizure and side effects of antiepileptic drugs.

**Results:** We collected data of 118 patients who developed epilepsy after the age of 60 years. The mean age of seizure onset was 67.5 years and out of which 71% patients were males. Generalized tonic clonic seizure semiology was most frequent (n=72). Etiological diagnosis was possible in nearly 72% patients, including those with cerebrovascular disease. A clear cause of epilepsy was not found (i.e., non-lesional epilepsy) in 28% patients. Abnormal EEG was found in 46% patients. Of the 100 patients who were followed for more than 1 year, 75.5% were on antiepileptic monotherapy and 98% had been seizure-free for more than 1 year.

**Conclusion:** In our cohort of elderly persons with new-onset epilepsy, primary generalized tonic clonic seizures was most frequent presentation. Cerebrovascular diseases formed the most frequent etiology of seizures. Epileptogenecity was relatively low in elderly patients and they responded well to antiepileptic medication.



**Citation: Mohini, Shailender Rawal, Surekha Dabla and Surender, 2016.** "Clinical profile of new onset seizures in elderly population: a study at tertiary care centre in northern part of India", *International Journal of Current Research*, 8, (06), 33565-33567.

## INTRODUCTION

The elderly population, comprising individuals aged 60 years and above, is the most rapidly growing in the world. Epidemiologic studies have shown that the incidence of epilepsy is significantly higher in the elderly than in any other age group (Hauser *et al*., 1993; Forsgren *et al*., 1996; Leppik and Birnbaum, 2010). Epilepsy in the elderly has specific features, etiological aspects, clinical manifestations and treatment responses are different from epilepsy in younger individuals. Clinicians who treat epilepsy in the elderly should be aware of these important characteristics.

****Corresponding author: Mohini,***
Asstt Prof, Department of Medicine, Pt B D Sharma PGIMS Rohtak, Haryana, India.

To determine the characteristics of epilepsy in the elderly population in India, we studied elderly population at a tertiary care centre in northern part of India for new onset of seizures to identify the characteristics of epilepsy in the elderly, etiology and effect of antiepileptic drugs on seizure control.

## METHODS

### Subjects

A prospective analysis of elderly patients was performed at Pt B D Sharma PGIMS Rohtak. About 118 patients were selected between march 2013 to september 2014 from out patient department and indoor department with new onset of seizures with age above 60. All the patients with onset of epilepsy before 60 years age, previous history of liver and renal disease and patients with documented hypoglycaemia,

hyponatremia or hypocalcemia were excluded. About 18 patients were lost to follow up.

### Diagnosis

Epilepsy was diagnosed on the basis of clinical information, including history, physical finding, scalp-recorded electroencephalogram (EEG), 3.0-T magnetic resonance imaging (MRI)/computed tomography of brain. Routine EEG was recorded with digital EEG using international 10-20 electrodes system. Seizures were classified according to ILAE commission 2010 (ILAE, 1981; ILAE, 1989).

### Antiepileptic medication

All the patients were initially put on single antiepileptic medication and were reviewed every month until seizures were controlled. Thereafter they were reviewed every three months. A patient not being controlled on single drug or developing intolerability was switched to another drug. If the second antiepileptic also failed to control seizures, then patient were put on combination of drugs.

## RESULTS

118 patients were enrolled in the study; the mean age of the patients with new-onset epileptic seizure was 67.5 ± 6.6 years (mean ± SD), and 71% patients were males (Fig, 1).

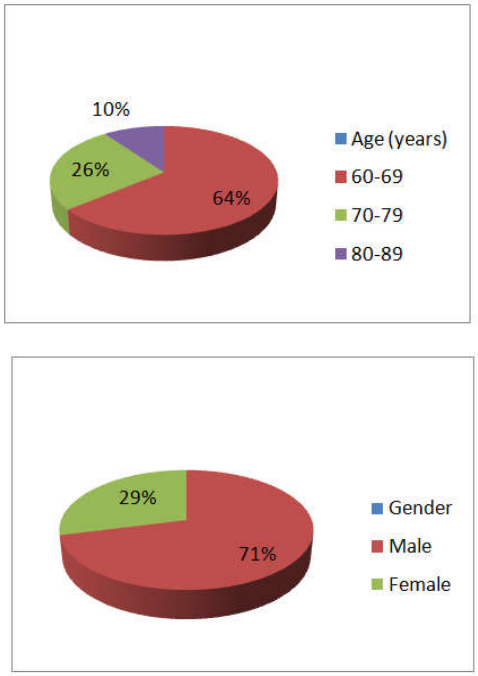


**Fig.1. Number of patients in different age group and sex distribution**

According to the seizure classification, 72 patients presented as generalized tonic–clonic seizures (n = 72, 72%), 17 as focal seizures with dyscognition (n = 17, 17%), and 11 as focal motor seizures (n = 11, 11%). Among 28 patients presenting with focal seizures, 22 cases had lesion on radiological study. Focal seizures were more frequent in cases with vascular lesions when compared with other lesions. Out of the total 29 cases of seizures associated with vascular lesions, 12 cases presented with focal seizures. Among 20 cases of seizures associated with tumours, seven presented as focal seizures (Fig. 2)

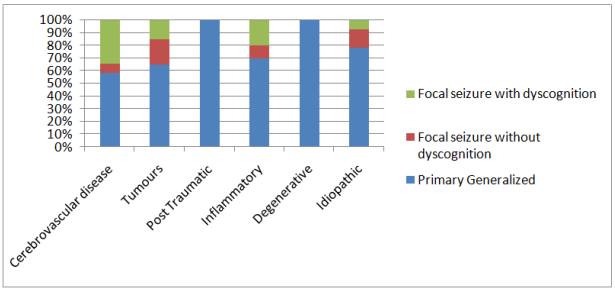


**Fig. 2. Type of seizures in accordance with etiology**

Status epilepticus was found in 18 patients. Among these, 12 patients presented with generalised tonic clonic status, five with focal seizures status with dyscogntion and one without dyscognition. Among all cases of status epilepticus, five were associated with SOL in brain, five with cerebrovascular disease, inflammatory lesions contributed four cases, post traumatic cases were two and two were idiopathic (Fig. 3).

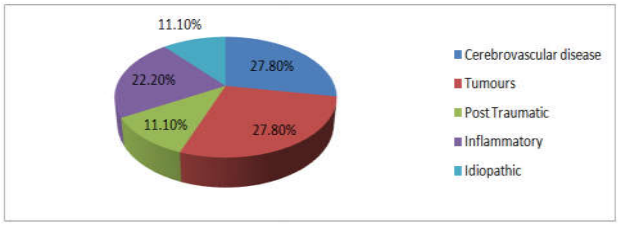


**Fig.3. Distribution of Status Epilepticus cases in accordance with etiology**

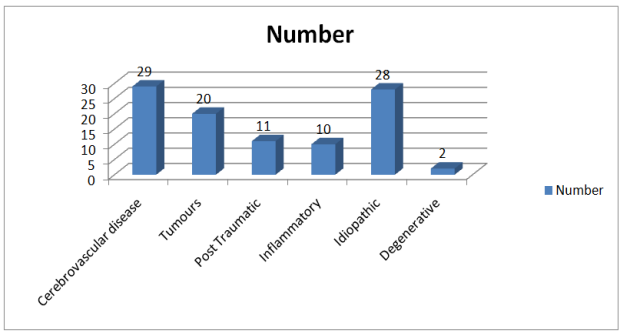


**Fig. 4. Etiological spectrum of Seizures in elderly**

An etiological diagnosis was possible in 72% patients, including those with cerebrovascular disease such as cerebral infarction (n=21) or hemorrhage (n = 8), dementia (n = 2), inflammatory disorders (n = 10), brain tumors (n = 20), and post traumatic (n = 11). A clear cause of epilepsy was not found in 28% patients and were classified as having non-lesional epilepsy (Fig. 4). Abnormal EEG results were found in 46% cases.

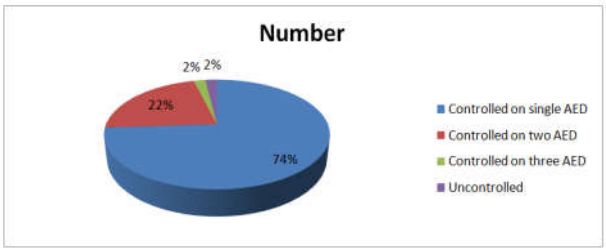


**Fig. 5. Outcome of cases according to number of AED usage**

Among the 118 patients included in this study, 18 were lost to follow up. For rest of the patient, majority (n=98) were well controlled on antiepileptic drugs. Among the controlled patients, 75.5% were controlled on single drug; 22.4% required two drugs and 2% required three anti epileptic drugs for seizure control (Fig. 5). Both of the patients with uncontrolled seizures had brain tumours as etiology. Among the patients controlled on polytherapy, 37.5% had tumours, CVA was present in 33.4% cases, inflammatory lesions in 8.3% cases and 20.8% were found to have normal neuro-radiological studies.

## DISCUSSION

In our study, generalized seizures was the most common presentation among elderly with new onset seizure. This finding is in contrary to other studies in past which shows partial seizure to be most common presentation (Hauser *et al*., 1993; Rowan *et al*., 2005). This variation might be due to lack of reliable witnesses to the events or due to improper recall of events. Status epilepticus was also found in a few patients; majority of which was generalised status epilepticus. It has been reported that the most common cause of seizures in the elderly is cerebrovascular disease (34.1–39.3%); other etiologies include trauma, degenerative diseases, congenital malformations, brain tumors, or encephalitis (Cloyd *et al*., 2006; Ramsay *et al*., 2004; Werhahn, 2009). Our study also showed that cerebrovascular accidents are the most common etiologies for seizures among elderly patients followed by brain tumour which is in accordance with earlier studies. This finding also emphasize the need of MRI in evaluation of new onset seizure in elderly particularly if focal to rule out brain neoplasm or stroke. We could not find any clear etiology in 28% of our cases supporting the fact that primary seizure may began in late adult life (Cloyd *et al*., 2006; Ramsay et al., 2004; Werhahn, 2009). In our study EEG was found abnormal in 46% of cases. On neuroimaging studies, MRI was conclusive in 72% of our cases thus supporting the role of MRI as investigation of choice in late onset seizures. In our study most individuals with newly diagnosed epilepsy responded well to treatment with AED. In fact, 98% of our patients were seizure free on medication. A previous study showed that seizures in elderly patients respond well to treatment and that AEDs effectively control seizures in approximately 80–86% of the elderly population (Cockerell *et al*., 1997; Silveira *et al*., 2011). Most patients (about 75%) needed single AED for treating seizures in the elderly. About 23% required either two or three AEDs. Accurate classification of seizures and syndromes is essential to ensure an appropriate choice of AED. The elderly are more likely to experience good outcomes compared with other age groups (Mohanraj and Brodie, 2006). The elderly patients reported here became seizure-free after receiving a relatively low dose of medication, which is consistent with the results of previous studies.

### Conclusion

In our cohort of elderly persons with new-onset epilepsy, generalized seizures followed by focal seizures with dyscognition was most frequent presentation. Cerebrovascular diseases formed the most frequent etiology of seizures followed by tumours. Primary brain tumours were most frequent as observed. Idiopathic cause was also not uncommon. Epileptogenecity was relatively low in the elderly patients and they mostly responded well to single antiepileptic medication as assessed after one year of starting medication.

## REFERENCES

Cloyd, J., Hauser, W., Towne, A., Ramsay, R., Mattson, R., Gilliam, F. *et al*. 2006. Epidemiological and medical aspects of epilepsy in the elderly. *Epilepsy Research,* 68(Suppl. 1):S39–48.

Cockerell, O.C., Johnson, A.L., Sander, J.W., Shorvon, S.D.1997. Prognosis of epilepsy: a review and further analysis of the first nine years of the British National General Practice Study of Epilepsy, a prospective population-based study. Epilepsia,38:31–46.

Forsgren, L., Bucht, G., Eriksson, S. and Bergmark, L.1996. Incidence and clinical characterization of unprovoked seizures in adults: a prospective population-based study. Epilepsia37:224–9.

Hauser, W.A., Annegers, J.F., Kurland, L.T. 1993. Incidence of epilepsy and unprovoked seizures in Rochester, Minnesota: 1935–1984. Epilepsia34:453–68.

ILAE C.o.. Proposal for revised classification of epilepsies and epileptic syndromes. Commission on Classification and Terminology of the International League Against Epilepsy. Epilepsia 1989;30:389–99.

ILAE C.O. Proposal for revised clinical and electroencephalographic classification of epileptic seizures. From the Commission on Classification and Terminology of the International League Against Epilepsy. Epilepsia 1981;22:489–501.

Leppik, I.E., Birnbaum, A.K. 2010. Epilepsy in the elderly. Annals of the New York Academy of Sciences, 1184:208–24.

Mohanraj, R., Brodie, M.J. 2006. Diagnosing refractory epilepsy: response to sequential treatment schedules. *European Journal of Neurology,* 13:277–82.

Ramsay, R.E., Rowan, A.J., Pryor, F.M. 2004. Special considerations in treating the elderly patient with epilepsy. *Neurology,* 62:S24–9.

Rowan, A.J., Ramsay, R.E., Collins, J.F., Pryor, F., Boardman, K.D. and Uthman, B.M. *et al*. 2005. New onset geriatric epilepsy: a randomized study of gabapentin, lamotrigine, and carbamazepine. *Neurology,* 64:1868–73.

Silveira, D.C., Jehi, L., Chapin, J., Krishnaiengar, S., Novak, E., Foldvary-Schaefer, N. *et al*. 2011. Seizure semiology and aging. Epilepsy and Behavior, 20:375–7.

Werhahn, K.J. 2009. Epilepsy in the elderly. Deutsches Aerzteblatt International106:135–42.

*******