


Characterization of epilepsy with onset after 60 years of age



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Abstract

Introduction: Despite its high incidence, the characteristics of epilepsy in elderly patients have not yet been widely studied. The clinical presentation of the disease is mostly atypical and findings from complementary examinations provide little help with diagnosis. Few reports have characterized this group of individuals. **Objective:** To describe the characteristics of patients with epilepsy with onset after 60 years of age. **Method:** A descriptive study of a case series was designed. For this purpose, 50 patients diagnosed with epilepsy with onset after 60 years of age, treated at the outpatient epilepsy clinic of the Hospital da Restauração (Recife-PE), were consecutively assessed. **Results:** The 50 patients included in the study had an average age of 75.3 (± 13) years, 30 (60.0%) were female and 20 (40.0%) were male. The average age at the first seizure episode was 72.5 (± 11.5) years. Focal epilepsy seizures were the most predominant (83.8%). The occurrence of status epilepticus was low in this group (4.0%). Symptomatic epilepsy was the most frequent type, and most of the causes were of vascular etiology (43.0%). Carbamazepine was most commonly used for treatment, and the patients responded well to low-dose monotherapy. Electroencephalograms displayed normal results in many cases (50.0%), and neuroimaging showed nonspecific findings for most individuals (83.0%). **Conclusion:** Epilepsy in elderly patients is predominantly focal and symptomatic, with a low occurrence of status epilepticus and good therapeutic response. The encephalogram and neuroimaging results are frequently nonspecific.

Key word: Epilepsy;
Epileptic Seizures; Elderly

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INTRODUCTION

The elderly are fastest growing segment of the population¹. In many developed countries, they constitute approximately 30% of the total population².

Epilepsy in elderly patients has an incidence of 100 cases/100,000 habitants/year. It is believed this incidence is underestimated because of incorrect diagnosis of epileptic seizures³. The incidence of late-onset epilepsy is two times greater than childhood-onset epilepsy at 70 years of age and three times higher at 80 years of age⁴.

The elderly are a heterogeneous group with specific particularities and comorbidities that make such cases a challenge for health professionals⁵. Currently, epilepsy is the third most common neurological disorder among the elderly, after stroke and isolated dementia⁶.

The main etiologies of epilepsy among the elderly are strokes, isolated dementia, traumatic brain injury, brain tumors and metabolic encephalopathy.⁷ In 25.0% of cases, even after extensive investigation, it is not possible to establish the cause of epilepsy.³

Most elderly patients suffer focal seizures (60% of cases) and in most of these cases there is impaired consciousness. Approximately 10% of elderly patients have more than one type of seizure⁸.

Often, older people do not present the classic symptoms of focal seizures with impaired consciousness that are present in younger individuals. These consist of an aura preceding a loss of consciousness or manual or orofacial automatisms, with drowsiness or mental confusion. The postictal drowsiness period also differs in elderly patients and may last for several days.⁸

This atypical clinical presentation results in a 25% error in diagnosis rate during initial clinical assessment. The most frequent incorrect diagnoses include memory disorders, syncope, and dementia.

The main reasons for this difficulty of diagnosis are the infrequent occurrences of generalized tonic-clonic seizures, the fact that focal seizures with impaired consciousness mostly appear to be prolonged drowsiness, and electroencephalograms, which only display interictal abnormalities in 30% of cases⁹.

Considering the above, it should be noted that a detailed medical history and neurological examination are still the basis of epilepsy diagnosis among the elderly.¹⁰ The aim of this study was to describe the characteristics of patients with epilepsy which began after the age of 60.

METHOD

A descriptive study of a case series was performed involving all epilepsy patients who experienced their first seizure after 60 years of age and were subsequently treated at the epilepsy clinic of the Neurology Service of the Hospital da Restauração, between August 2013 and July 2014, resulting in a total of 50 patients (convenience sample). All patients underwent computed tomography of the skull or magnetic resonance imaging (MRI) and electroencephalography, and received a clinical diagnosis of epilepsy.

Patients who had other diseases which could simulate epileptic seizures or who used medication that could cause seizures as a side effect were excluded.

A study protocol with 27 items referring to the socio-demographic characteristics of the patient, the clinical characteristics of epileptic seizures, medications used, and supplementary examinations performed, was applied during patient appointments.

Data was analyzed by arithmetic means, medians, and standard deviations.

This study was approved by the Medical Ethics Committee of the Hospital da Restauração (CAAE

14309313.9.0000.5198). All the participants signed an informed consent form and agreed to participate in this study.

RESULTS

Of the 50 patients (average age 75.3 ± 13 years), 30 (60%) were female and 20 (40%) were male, with an average educational level of 5.8 ± 4.5 years. The average age when the first seizure occurred was 72.5 ± 11.5 years. Only 15% patients presented disorders during physical examination, and motor impairment was found in all these cases.

The most common cause was vascular etiology (43.3%), followed by non-identified etiology (37.8%), and post-traumatic and degenerative etiology (8.1% for each).

Focal seizures with impaired consciousness were most frequently encountered (51.4%), followed by focal seizures evolving to bilateral epileptic seizures (24.3%), generalized tonic–clonic seizures (16.2%), and focal seizures without impaired consciousness (8.1%). In addition, 15 patients (30%) had more than one type of seizure. All of these cases were focal seizures with impaired consciousness and focal seizures evolving to bilateral epileptic seizures. Two patients (4%) had a generalized tonic–clonic type of status epilepticus.

Among the 50 patients, 25 (50%) had not experienced seizures for at least two years, with no significant differences in relation to gender or age. Only four (8%) patients were not receiving antiepileptic drugs. Thirty-five patients (70%) were being treated with monotherapy and 15 (30%) required polytherapy. There was no significant relation between seizure control and the number of drugs used. The most frequently used antiepileptic drugs, either in combination or alone, were carbamazepine, followed by valproic acid and phenytoin.

The most common findings of the neuroimaging examinations were diffuse brain atrophy combined

with microangiopathy (53%), followed by isolated microangiopathy (30%) and microangiopathy combined with focal cerebral gliosis (17%).

A total of 30 patients (60%) had normal encephalography results, 17 (34%) presented focal epileptiform activity (mainly in the temporal lobe), and 3 (6%) had generalized epileptiform activity.

DISCUSSION

The sample of the present study contained a predominance of female patients with low levels of education. A predominance of vascular lesions was also found. Epilepsy with focal seizures was most prevalent (83.8%), representing a slightly higher value than those found in previous studies (60% cases with focal seizures)^{11–12}.

A lower frequency of status epilepticus (5.4%) was found than in a previous study which recorded a prevalence of 30%, possibly because it was performed in an ambulatory clinic⁷.

Monotherapy was the predominant treatment strategy found in the present study, and the most prescribed drug was carbamazepine in low doses. Epileptic seizures in patients above 60 years of age had a positive response to the monotherapy¹³. The infrequent use of lamotrigine is related to the fact that the sample of the study was taken from a public health service with limited financial resources.

Despite a lack of consensus regarding treatment, many studies recommend the introduction of an antiepileptic drug for an indefinite period of time in elderly patients after the occurrence of the first seizure. This is because of the high risk of reoccurrence of seizures, which is 90% after medication is discontinued^{14–15}.

The pharmacokinetic and pharmacodynamic differences in antiepileptic drugs depend on the physical condition of the patient, the presence of

significant comorbidities, and the effect of drugs used in a concomitant manner¹⁶. Absorption, protein binding, and hepatic metabolism are generally altered in elderly patients, and there is a high incidence of adverse effects¹⁷. Special caution is required to minimize drug interactions and toxicity¹⁸.

The initial assessment of an elderly patient with epilepsy does not differ from that of younger patients, and should always include an electroencephalography and a neuroimaging examination¹⁹.

Despite the lack of studies on encephalography performed during first seizures in elderly patients, there is evidence supporting the need for this examination as a fundamental part of diagnosis and to predict a prognosis with regard to seizure control²⁰.

However, a single electroencephalographic examination may produce false negative results, and normal or inconclusive examinations cannot exclude the diagnosis of epilepsy²¹. Data found in literature is consistent with the findings of the

present study, indicating a 50% rate of normal encephalogram examinations.

The inconclusive findings of the neuroimaging examinations are consistent with the literature, where inconclusive results also occur frequently²².

When faced with an often unspecific profile, the prevalence of epilepsy in the elderly is frequently underestimated. However, its diagnosis and an early therapeutic approach allow effective short and long term seizure control, contributing to improving the quality of life of these individuals.

The results of the present study represent a case series, however, the findings should be interpreted with caution and should be confirmed through future studies.

CONCLUSION

Epilepsy in the elderly is predominantly focal and symptomatic, has a low occurrence of epilepticus status and a good therapeutic response, as well as electroencephalogram results that are often normal.

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