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# Epilepsy in the Elderly and Depression

Dubravka Šepić Grahovac<sup>1</sup>, Klementina Ružić<sup>2</sup>, Tanja Grahovac<sup>2</sup>, Elizabeta Dadić Hero<sup>3</sup>  
and Snježana Bajek<sup>4</sup>

<sup>1</sup> Polyclinic for Neurology and Psychiatry »Interneuron«, Rijeka, Croatia

<sup>2</sup> Department of Psychiatry, Rijeka University Hospital Centre, Croatia

<sup>3</sup> Community Primary Health Centre, Primorsko-goranska County, Croatia, Department of Social Medicine and Epidemiology, School of Medicine, Rijeka, Croatia

<sup>4</sup> Department of Anatomy, Medical Faculty School of Medicine, Rijeka, Croatia

## ABSTRACT

*Epilepsy is one of the most common neurological problems affecting approximately 1% of the world's population with higher incidence among elderly individuals. Although depression is a common comorbid condition in patients with epilepsy, there is a paucity of information regarding depression in geriatric patients with epilepsy. This study analysed a group of 83 patients affected by different epilepsy phenotypes accompanied by mental disorders, especially depression. Antiepileptic and antipsychotic drug treatment has been evaluated, particularly a positive effect of the new antiepileptics (monotherapy and polytherapy) both on the reduction of seizures and mental disorders.*

**Key words:** epilepsy, depression, antiepileptic drugs

## Introduction

Epilepsies in the elderly are generally considered to be those occurring after the age of 60 or 65<sup>1</sup>. Epilepsy that manifests for the first time in adult age is referred to as late onset epilepsy. Prevalence of psychiatric disorders is higher in patients with epilepsy than in general population, the most frequent being: anxiety, depression, panic attacks, behavioural disorders as well as psychotic states with paranoid elements. Depression is the most common psychiatric comorbidity in patients with epilepsy with prevalence between 20–55%<sup>2</sup>. The relationship between depression and epilepsy is bidirectional what suggests that the two disorders share some common pathogenic mechanisms. The aim of our work is to present treatment effects of various antiepileptic drugs (monotherapy and polytherapy) on older patients affected by epilepsy together with different mental disorders treated by psychiatric drugs. Clinical phenotype of epilepsy was compared with the type of mental disorder. It was analysed which was the most used antiepileptic with respect to particular psychiatric diagnosis as well as the most frequent antiepileptic administered to people affected by epilepsy and depression. Moreover, it was established which psychiatric drugs were used to treat depression in epileptic patients older than 60 years of age.

## Materials and Methods

The analysis was based on the History of Present Illness of 83 patients older than 60 years of age who had been treated for epilepsy for more than a year. With respect to the type of epileptic seizures and in accordance with the ILAE classification<sup>3</sup>, the patients were subdivided into the following groups: primary generalized epilepsy, complex partial seizures, complex partial seizures with secondary generalization and partial motor seizures.

Interictal electroencephalogram (EEG) findings were also analysed and subdivided into the following categories: diffusely slow, paroxysmal activity, disrhythmic, focal abnormality and those with normal EEG values. According to brain neuroimaging findings (CT/MRI no contrast and contrast) the patients were categorized into: normal findings, diffuse or localized cortical atrophy, diffuse vascular encephalopathy or no findings available.

Comorbidity with other internal diseases (possible risk factors for epilepsy in the elderly) such as arterial hypertension, cardiovascular diseases, diabetes, thyroid diseases, tumors and autoimmune diseases was also analysed. One of the participants underwent dialysis. Depression, anxiety-depressive disorder, organic psychosin-

drome, psychoses and dementias (vascular and Alzheimer's) were the most recurrent psychiatric disorders in patients affected by epilepsy. Type of epilepsy and its occurrence in depressive patients with respect to sex was also analysed and it was established that there was also as a group of patients without psychiatric diagnosis. Antiepileptic therapy was subdivided into monotherapy and polytherapy and was compared with the use of psychiatric drugs.

## Results

Mean age of patients was 73.8 years. Majority of them were females (n=44; 55.7%). Most of the patients had idiopathic generalized epilepsy (n=51; 60%), 21.4% were diagnosed with complex partial seizures, 12% had partial complex epilepsy with secondary generalisation and 6% partial motor seizures. Standard digital interictal EEG recordings showed diffuse slow cerebral activity in 36% patients; 23% had diffuse disrhythmic discharge, and 13% had generalised paroxysmal activity; 10% showed irritative focus, while 15.7% had normal EEG.

As to brain CT/MRI findings, diffuse cortical atrophy was present in the majority of patients (n=25; 30%). Ten patients (12%) showed localised cortical atrophy, eight patients (9.6%) showed diffuse vascular encephalopathy, while 20 of them (24.1%) did not undergo the aforesaid exams and the same number had normal findings. 50.6% of the participants suffered from arterial hypertension, 35.3% was also treated for cardiovascular disease, 19.3% had diabetes (type II), 8.4% had thyroid dysfunction and 3.6% suffered from other diseases (autoimmune diseases, chronic kidney disease, peptic ulcer disease and prostate adenoma).

The analysis of comorbidity between epilepsy and mental disorders showed that 20.5% of epileptic patients suffered from depression, 18.1% showed clinical symptoms of organic psychosyndrome and 9.6% manifested symptoms of anxiety-depressive disorder. 7.2% of the patients were diagnosed with vascular dementia and 2.4% with dementia of the Alzheimer's type, while 38.6% of the patients were not diagnosed with any psychiatric disorders.

Antiepileptic monotherapy was administered to 50 (60.2%) patients, two antiepileptics to 29 (34.9%) patients, and three antiepileptics were prescribed to 4 patients who suffered from pharmacoresistant epilepsy. Lamotrigine and valproate were the most used antiepileptics (43.3%). The study revealed that a relatively large number of elderly patients was treated with phenobarbital (25.3%) for quite a long time. The risks of replacing the aforesaid medicine are high due to possible seizure recurrence. As to other fourth-generation antiepileptics, the most prescribed was topiramate (9.6%), and the same number of patients (2.4%) was treated with gabapentin, oxcarbazepine and levetiracetam. Lamotrigine in combination with valproate or phenobarbital was the most used polytherapy, followed by valproate-topiramate and carbamazepine-lamotrigine combinations.

**TABLE 1**  
FREQUENCY OF USE OF ANTIEPILEPTIC DRUGS IN  
EPILEPSY AND DEPRESSION

	N	%
LTG	4	23.5
LTG+PH	3	17.6
LTG+VPA	2	11.8
LTG+VPA+OXZ	1	5.9
VPA	2	11.8
VPA+GBP	1	5.9
VPA+TPM	1	5.9
CBZ	1	5.9
CBZ+TPM	1	5.9
PH	1	5.9

Seventeen patients suffered from epilepsy in combination with depression, the great majority (n=13) being women. A separate analysis of antiepileptics and psychiatric drugs in combination therapy was carried out. Besides antiepileptic therapy, 70.6% of the patients used anxiolytics, 52.9% antidepressants, 17.6% antipsychotics and 6.9% hypnotics. The most common monotherapy administered to depressive patients was lamotrigine (23.5%) and valproate (11.8%) followed by lamotrigine in combination with phenobarbital (17.6%) or valproate (11.8%). (Table 1).

## Discussion and Conclusion

Neurology and psychiatry are both involved in brain research and treatment since there are many interactions between neurological and psychiatric disorders. Besides seizure elimination, the basic aims of epilepsy treatment are: side effects management, socialisation as well as adequate and systematic detection and treatment of mental disorders.

In the last years epilepsy and comorbid depression have raised marked interest, especially the occurrence of the aforesaid comorbidity among the elderly since the prevalence of epilepsy in this age group tends to increase. In his study Hećimović et al present the prevalence of mood disorders in epileptic patients in Croatia, and show that 33.3% of patients had depressive symptoms<sup>4</sup>. The most frequent mental disorders affecting epileptic patients are anxiety disorders, depression, panic attacks, behavioural disorders as well as psychotic states with paranoid elements<sup>5-7</sup>. A number of recent studies assessing self-reported quality of life in epileptic patients showed the latter to be in stronger association with depression than with seizure factors, including seizure frequency<sup>8-13</sup>. Management of depression in the elderly with epilepsy is very specific because of pharmacokinetic interactions between antidepressant drugs and antiepileptics.

The results of this study proved that some antiepileptic drugs (lamotrigine and valproate) as monothera-

py, or in combination, in addition to their anticonvulsant effects, improve mental disorders, especially symptoms of depression and anxiety, social interaction and general well-being of patients, as reported in the literature<sup>14,15</sup>. Epilepsy with comorbid depression mostly affected female patients subjects of our study. The fact that majority of them had complex partial seizures may be explained partly by source localisation of epileptic activity. The absence of mental disorder diagnosis in 38.6% of the epileptic patients proves that other disorders reported by

such patients are attributed solely to epilepsy and are often underestimated.

The negative impact of depression on patient life quality is well known since it causes various psychosocial problems. Its early detection is therefore of paramount importance. A multidisciplinary approach turned out to be vital in treating the patients affected by epilepsy and comorbid mental disorders in order to improve their quality of life.

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*D. Šepić Grahovac*

*Polyclinic Interneuron Rijeka, Krešimirova 22, 51 000 Rijeka, Croatia*  
*e-mail: poliklinika.interneuron@ri.t-com.hr*

## EPILEPSIJA U STARIJIH OSOBA I DEPRESIJA

### SAŽETAK

Epilepsija je jedna od najčešćih neuroloških bolesti sa prevalencijom u općoj populaciji od 1%, i većom incidencijom u osoba starije dobi. Premda je depresija česti komorbiditet u bolesnika sa epilepsijom, nema previše podataka o povezanosti i karakteristikama depresije u starijih osoba koje boluju od epilepsije. Analizirana je skupina od 83 bolesnika sa različitim epileptičkim fenotipom i psihičkim poremećajima, osobito depresijom. Evaluirana je terapija antiepilepticima i psihofarmacima, s posebnim osvrtom na pozitivni terapijski učinak novih antiepileptika (monoterapija i politerapija) ne samo na redukciju epileptičkih napadaja već istovremeno i na poboljšanje psihičkog stanja.