



Bioelectric activity of the brain in elderly patients with epilepsy

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ABSTRACT: Epilepsy in the elderly is difficult to diagnose, often erroneous. Quite a few similar complex paroxysms at this age for differentiation. For example, cough syncope, cardiogenic or necrosis. Most of the causes of symptomatic causes in the elderly are cerebrovascular problems, in particular after a stroke, vascular dementia. In cases where there are no causes of epilepsy, scientists tend to consider epilepsy cryptogenic, as a consequence of local brain damage. According to many authors (1, 4, 5), it is partial seizures that make up a high percentage of all types of seizures. This transformation has a chain of consequences from idiopathic epilepsy with a transition to the stage of clinical remission, against the background of vascular changes, leading to the filling of pathology in old age. The difficulty of diagnosis is also associated with the layering of the interpretation of cognitive disorders, intellectual-mnemonic, which is mistaken for an epileptic seizure (5, 6, 9). In turn, it ends with inadequate treatment and bad consequences. Therapy should include reducing the risk of developing vascular catastrophes and preventing the transition to epilepsy. Accordingly, the selection of anticonvulsants should be strictly individual, taking into account age and comorbid background, increased susceptibility to side effects of drug groups (2, 7, 8). The main goal of all antiepileptic drugs (AEDs) is to eliminate the epileptic activity of the brain and stabilize the neuron, according to literary sources and practical experience, shows the opposite picture, an increase in the frequency and severity of seizures, the emergence of new ones that are up to status, i.e. aggravation begins. To date, the risk of aggravation is well understood, so it is necessary to take into account the selection of drugs in the treatment of epilepsy in the elderly. Moreover, the research devoted to the treatment of this category of patients is small in number, giving only general recommendations (1, 3, 5).

KEYWORDS: Epilepsy, anticonvulsant, interpretation of cognitive disorders.

INTRODUCTION

According to UN estimates, the world's population aged 60 and over in 2009 exceeded 737 million people, and by 2050 it will be more than 2 billion people, this is noticeably more in developed countries, where fertility has reached extremely low levels and life expectancy has increased to the

highest numbers. But with life expectancy, the incidence characteristic of the elderly also grows in parallel, including epileptic disease (1, 3).

Aim to study the clinical and diagnostic features of epilepsy in the elderly with the use of antiepileptic drugs.

Material and research methods. 70 patients, 35 women and 35 men, aged 70 to 80 years were subject to examination. All patients had concomitant diseases (diabetes mellitus, arterial hypertension, heart failure, etc.). on the part of the neurological status, preliminary was the setting of chronic cerebral circulation, several patients had a history of the consequences of an acute cerebrovascular accident, according to the ischemic type; only 21% of patients considered themselves "healthy old people". The comparison group was selected by random sampling, patients who did not suffer from epilepsy, but were similar in age, 30 patients who received treatment in the neurology department of 1-Clinic SamMI, with the consequence of an acute cerebrovascular accident, or with a diagnosis of chronic cerebrovascular accident. The examination included neurological, physical examination, ECG, EEG, research; laboratory analysis determination of blood biochemistry, hematocrit; neuroimaging examination CT / MRI of the brain, in rare cases Echo EG. Several patients underwent examination by USDG, TKDG. All patients received antiepileptic treatment and, depending on the length of time of taking medications, an analysis was performed with the current correction of therapy. Statistical processing was carried out on an individual computer.

Results of research. In the main group of patients, symptomatic and cryptogenic forms of partial epilepsy prevailed. Cerebrovascular diseases were the cause of epilepsy in the examined patients, MRI parameters confirmed our assumptions. Thus, retrocerebral cysts were found in 20% of patients, internal hydrocephalus in 88%, brain subatrophy in 73% of cases, post-stroke cysts in 27.3%, moderately epileptogenic cysts in 21% of patients, highly epileptogenic in 2 patients. Accordingly, a structural change in the brain was revealed in all examined patients. In the parallel comparison group, there were also signs of the consequences of cerebrovascular disorders, but these were non-epileptiform, non-epileptogenic disorders. In the study of cerebral blood flow, there were no differences between the comparison groups, the average line of blood flow velocity and the index of peripheral vascular resistance in the middle cerebral artery. Pattery stenosis was more detected in patients with a consequence of acute cerebrovascular accident. There were no significant differences in the indices of atherosclerotic disorders of the extracerebral vessels; in terms of the thickness of the common carotid artery complex, the percentage of stenosis in the group with epilepsy and without epilepsy was practically equal to 49% and 50%. The degree of occlusion of atherosclerotic lesions of extra intracerebral vessels in the groups was matched, thus, this factor cannot be the cause of epilepsy.

Table 1.

The result of cerebral blood flow in the comparison groups

Indicators	Main group	Comparison group
Vm (sm/sec)	65	63
Pi	0,70	0,72
Asymmetry coefficient Vm (%)	33	31
Stenosis pattern (n)	15	17
Intima-media complex thickness (mm)	1,70	1,72

Brachiocephalic artery stenosis (%)	50	51,1
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Note: * - median and interquartile range

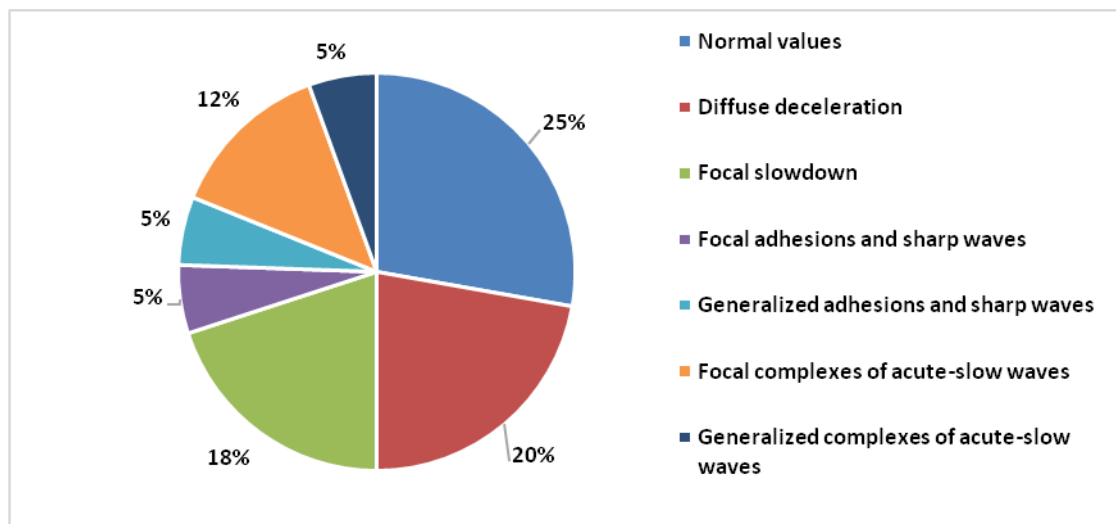


Figure: 1. Data of bioelectric activity of the main group

Bioelectrical activity data are more informative (Fig. 1), common features and potential differences were found. The level of the amplitude of the main EEG rhythm is rather high, within $100 \pm 5 \mu\text{V}$, compared with the group without epilepsy, where the numbers did not exceed $55 \mu\text{V}$. At the same time, in patients with epilepsy, bioelectric activity noticeable for synchronization was revealed, most likely due to dysfunction of the mid-stem structures of the brain. For example, in the main group there is a high-amplitude variant of the EEG with synchronization of cortical rhythms in 45%, and in the comparison group, only one patient had such data. The same increase was noted in the beta-activity index, which confirms the literature data on a rare phenomenon of elderly patients with epilepsy. A slowdown in general activity in the main group is clearly more often seen, this is a sign of brain pathology, and at the same time the norm for older people, and is used as a marker of cortical atrophy of the brain. In patients with post-stroke epilepsy. A characteristic feature was the pronounced interhemispheric asymmetry. From the side of injury, pronounced slow-wave activity with epileptiform elements, intact bioelectric activity over the intact hemisphere. This pattern is associated with a large difference in the brain, the consequences of a stroke. The comparative group of patients with the consequences of stroke also had interhemispheric asymmetry, but with low amplitude slow-wave activity without an acute-wave component. Analysis of seizures in the main group revealed secondary generalized seizures in 37% of cases, isolated partial seizures in 15%, temporal localization was determined in 21% of cases, in the frontal sphere in 9.2%.

The peculiarity of the EEG of 80-year-old patients consisted in registration against the background of a general diffuse slowing down of the drop in amplitude values, the low significance of the test for photo stimulation, only 2 patients showed the phenomenon of epilepsy, the test with hyperventilation was more indicative. In making the diagnosis of epilepsy, the priority is the clinical picture of the disease, after studying the clinic of seizures in the patients of the surveyed groups, the fact of memorizing the seizure was interesting, with partial patients remembering the onset of the

seizure, with generalized patients there was no information. paroxysmal states were in the form of local seizures without loss of consciousness (8 patients), synconal states with loss of orientation and loss of consciousness for several seconds (6 patients); combination with autonomic disorders such as pain in the heart, epigastric pain, dizziness or "coma in the throat", other autonomic dysfunctions in 21 patients. All patients of the main group were prescribed or underwent correction of antiepileptic therapy. Observations showed the lack of a therapeutic effect in 19% of patients, only 36% achieved remission, in other cases all signs of improvement. In 6 cases, the need to cancel seizures, due to pronounced side effects. The effectiveness of therapy was delayed due to the peculiarity of the age contingent of patients, refusal of treatment (taking any medications), reduced cognition, inability to receive medication on time on their own, age-related depression. Nevertheless, the examined patients received treatment under the supervision of their caregivers, of the frequently used antiepileptic drugs were carbamazepine 45%, valproate (deposit) 35%, phenobarbital 10%, topiramate 7%, and 3% lamotridpsin. Mono therapy was received by 68% of patients in the main group, in other cases, polytherapy was used, and constantly changing. As you can see, carbamazepine has traditionally been the drug of choice for practitioners. Taking into account the above stated clinical and diagnostic data, locally caused, symptomatic epilepsy in the elderly, the drug was chosen correctly. It is well tolerated, acts quickly, gives a good effect, but the disadvantage is the influence of toxic components, and the liver and sedation. Moreover, this category of patients without the appointment of antiepileptic drugs has a comorbid background, and these symptoms accompany patients. Thus, the requirements for the drugs of choice are taking into account the peculiarities of metabolism in the elderly, the content of plasma concentration, the ratio in harmony of effectiveness and tolerance.

CONCLUSIONS

1. Epileptic seizures in the elderly, develop on the basis of rodenerative changes and cerebrovascular disorders
2. Elderly patients, with a comorbid background of concomitant diseases, need mono therapy of antiepileptic drugs, taking into account the interaction with other drugs, under the control of bioelectric activity, to exclude agration, it is necessary to control the clinic and the concentration of drugs in plasma.

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