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THE PREVALENCE OF EPILEPSY IN UKRAINE

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ПОШИРЕНІСТЬ ЕПІЛЕПСІЇ В УКРАЇНІ

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РАСПРОСТРАНЁННОСТЬ ЭПИЛЕПСИИ В УКРАИНЕ

According to the WHO data there are 40—50 million of registered patients with epilepsy in the world. In different countries the prevalence of epilepsy varies significantly from 0,65 up to 30—40 per 1,000 of population. A variety of reasons for the development of epilepsy, high frequency of the obliterated, without convulsions, atypical forms, comorbidity, the difficulties of differential diagnosis, the need for medical assistance of various specialists, the lack of information about the epidemiological characteristics of epilepsy in many countries of the world cause significant shortcomings in the providing of health care to the patients with this pathology. Therefore, more than 75 % of patients in the world do not receive adequate treatment.

At the end of 2013 in Ukraine the number of registered patients with epilepsy was 0.25 % of the total population and corresponded to 24.6 cases per 100 thousand population.

At 10-year period the prevalence of epilepsy has increased from 23.5 to 24.6 per 1,000 population, the incidence for this period decreased from 1.9 to 1.6. The significant variations of these indicators, in 3—4 times, are marked in different regions of Ukraine. Individuals of working age constitute 63.6 % of the registered patients with epilepsy.

Key words: epilepsy, prevalence, incidence.

За даними ВООЗ у світі проживає 40—50 млн зареєстрованих хворих на епілепсію. В різних країнах показник поширеності епілепсії коливається від 0,65 до 30—40 на 1000 населення.

Суттєві недоліки в наданні медичної допомоги хворим на дану патологію обумовлені різними причинами виникнення і розвитку епілепсії, високою частотою її стертих, безсудомних, атипичних форм, коморбідністю, труднощами диференціальної діагностики, необхідністю надання медичної допомоги різними спеціалістами, відсутністю чітких епідеміологічних характеристик, у зв'язку з цим у світі більше 75 % хворих не отримують своєчасної допомоги й адекватного лікування.

В Україні на кінець 2013 року кількість зареєстрованих хворих на епілепсію складала 0,25 % від загальної кількості населення і відповідала 24,6 на 100 тис. населення. За 13-річний період показник поширеності епілепсію збільшився з 23,5 до 24,6 на 100 тис. населення, показник захворюваності за цей час зменшився з 1,9 до 1,6. Наголошуються значні (у 3—4 рази) коливання цих показників в різних регіонах країни. Особи працездатного віку склали 63,6 % зареєстрованих хворих.

Ключові слова: епілепсія, поширеність, захворюваність.

По данным ВОЗ в мире проживает 40—50 млн зарегистрированных больных эпилепсией. В разных странах показатель распространённости эпилепсии колеблется от 0,65 до 30—40 на 1,000 тыс. населения.

Существенные недостатки в оказании медицинской помощи больным с данной патологией обусловлены различными причинами возникновения и развития эпилепсии, высокой частотой её стертых, бессудорожных, атипичных форм, коморбидностью, трудностью дифференциальной диагностики, необходимостью оказания медицинской помощи различными специалистами, отсутствием чётких эпидемиологических характеристик, в связи с этим в мире более 75 % больных не получают своевременной помощи и адекватного лечения.

В Украине, на конец 2013 года, количество зарегистрированных больных эпилепсией составляло 0,25 % от общего количества населения и соответствовало 24,6 на 100 тыс. населения. За 13-летний период показатель распространённости эпилепсии вырос с 23,5 до 24,6 на 100 тыс. населения. Показатель заболеваемости за это время уменьшился с 1,9 до 1,6. Отмечаются значительные (в 3—4 раза) колебания этих показателей в разных регионах страны. Лица трудоспособного возраста составляли 63,6 % зарегистрированных больных.

Ключевые слова: эпилепсия, распространённость, заболеваемость.

Epilepsy is one of the most widespread and socially significant diseases of nervous system with a variety of clinical manifestations, course and prognosis. According to different authors almost 10 % of people throughout their life have at least one epileptic seizure, and epilepsy is developing in about half of them. It is one of the most severe economic burdens for society, patients and their families. In Europe alone, the costs for control of active forms of epilepsy reach to 20 billion EUR per year. According to studies, which were conducted in different regions of Russia to study the epidemiology of epilepsy, and analysis of the literature it was shown that the cost of management of patients with epilepsy in different countries differs significantly depending on the disease course and treatment effect. The average cost per patient ranged from 52.08 to 367.63 EUR per month. According to the results of the research the annual amount of costs for outpatient therapy in Moscow amounted to 103 million RUB. The lowest costs were determined for patients who are fol-

lowed up by general practice physicians, i. e. with the least severe and frequent attacks. The essential part of the direct costs is the cost of antiepileptic drugs, hospital stay and examination in the hospital, caregiving and transport costs. Overall, in 2000 costs for epilepsy equaled to 0.5 % of all health care costs in the world. An Indian study indicates that the total costs of each case of epilepsy are 344 USD per year (or 88 % of the average income per head). The total costs of 5 million estimated cases of epilepsy in India amounted to 0.5 % of gross national income [1, 2].

The incidence of epilepsy is currently regarded as one of the most socially important not only because of significant direct material costs, high level of disability and mortality in patients, which is almost 3 times higher than in the general population. The prevalence of epilepsy in the population is equal to 0.5—1.0 % in European countries and in the United States (WHO, 2009) and it is much higher in the developing countries. According to WHO, there are 40—50 million registered patients with epilepsy in the world, and the Commission on the epidemiology of the

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International League Against Epilepsy (ILAE) (2011) numbers up to 64 million people with epilepsy in the world. According to various researchers from 40 to 65 million of people on the planet are suffering from epilepsy. There is a tendency to the increased prevalence of epilepsy over the last decade. It is about 5—10 cases per 1000 population in the developed countries. It is about 80—230 cases per 100 thousand population in the general population of most European countries.

In the developing countries data on the prevalence of this disease are very different. In the CIS countries the average is 0.96—10.0 per 1,000 population; in India — 3.6, in the rural areas of Nigeria is up to 40 per 1,000 of population. Standardized by age and sex of the adult population, the prevalence of epilepsy in the Republic of Sakha — Yakutia is 3.39 per 1,000 population, while in the rural areas is 4.57; in Krasnoyarsk — 44.1, and in the Krasnoyarsk region — 297.7 per 100 thousand population. Significant variations in the prevalence of epilepsy are identified in the study of indicators of patients' treatment in medical care institutions and with the help of population method [3, 4].

According to the data of *Krytzka Y. A. et al.* (Russia), who conducted a study of the incidence of epilepsy in Transbaikalia using the population-based method, they have found that the average incidence of epilepsy in Chita city and Aginsk region was 21.59 and 20.71 cases per 100 thousand population for 10-year period. At the same time, these indicators according to the treatment of patients in medical institutions were respectively 18.32 and 17.45. *Burchynskii S. G.*, according to the literary data, testifies that today in Ukraine there are registered 100,000 patients diagnosed with epilepsy — the real picture is 500,000 persons with epilepsy manifestations. According to the data of *Kyssin M. Ya. et al.* in St. Petersburg, following the materials of the municipal epileptological centre, the number of adults with epilepsy at the end of 2005 was equal to 0.4 % of the population, but the total number of patients with epilepsy and epileptic syndrome is significantly higher — 1.6 % of residents [5, 6].

Epidemiological studies indicate a high incidence in all age groups. Rochester Epidemiology Project, one of the largest and most significant databases of such kind, revealed an annual incidence of epilepsy at 52.3 persons in 100 thousand population. Population studies conducted in developed countries have shown that this disorder is detected annually at 40—70 persons in 100 thousand population. According to the other sources there are recorded from 24 up to 53 cases of repeated unprovoked epileptic seizures per 100 thousand people annually in these countries of registered cases. According to the data of *Gekht A. B. et al.*, the incidence of epilepsy in Russia was 17.59 per 100 thousand of whole population [3, 7].

The highest incidence is observed in the first months after birth — from 100 to 233 cases per 100 thousand population, subsequently it decreases and increases again in old age. In 50—60 % of patients the onset of epilepsy occurred under the age of 16 years. In early childhood, the incidence is 60 cases per 100 thousand of individuals, in adolescents and adults — 30—40 cases, in persons over 65 years — up to 100—170 cases. [8].

P. Jallon et al. paid attention to the difficulty of diagnosing of epilepsies and diagnosing of the most common of them — idiopathic epilepsy. According to his observation it may take some period of time since the development of the first myoclonic spasms before the first visit to the physician. In 37 % of patients with absences this period is one year or more. Only 17.4 % of patients with epilepsy are diagnosed during the first attack. From the analyzed cohorts

of children and adults the authors conclude that the total number of idiopathic generalized epilepsy was 15—20 %. At the same time in the study of *Manford et al.* it was defined in 6.8 %, and in the study of *Gastant et al.* — 28.4 %. In the developing countries, where EEG-test is often an unavailable procedure, *Murty et al.* reported that in India the frequency of idiopathic generalized epilepsy equals only to 6.8 %, and in the study of *Zarrelly et al.* (USA) — 3.7 per 100 thousand population. The same results were obtained in Geneva. In southwestern France the prevalence of idiopathic generalized epilepsy is much higher — 9.2 per 100 thousand population in patients younger than 60 years and 18.4 per 100 thousand population among patients younger than 25 years. In Lithuania, the prevalence of this disorder is only 0.65 per 1,000 individuals [9].

In recent years, much attention is paid to gender aspects of diagnosis and therapy of epilepsy. Epilepsy and unprovoked seizures in total have higher prevalence among men both in the developed countries and in the developing countries, but these data were not statistically significant in most studies. The reasons of gender differences for the occurrence of epilepsy still remain unknown [10, 11].

In the multifactorial pathogenesis of epilepsies both hereditary and acquired factors are involved. Genetic predisposition plays a significant role in the etiology of ordinary idiopathic epilepsies, febrile seizures, which, in the course of time, become afebrile seizures in 2,7 % of children. In the North American and European populations the prevalence of febrile seizures is 2—5 %; in Japan and on the Pacific Islands they occur in 7—14 %.

There is a standpoint that epilepsy is a heterogeneous group of disorders which are characterized by recurring seizures. While conducting a multicenter study of the epilepsies in different countries the exact genetic causes of epilepsy in 1 % of patients were released, but in most cases of this "divine" disease, they reasons remain unknown [12—14].

Researchers also pay the significant attention to the study of comorbid pathology in patients with epilepsy, which affects its clinical course, the frequency of attacks, etc.

The scientific papers which are devoted to the study of combination of epilepsy and other physical and neuropsychiatric diseases in most cases are related to symptomatic localization-related epilepsy, which is the result of a pathological process: stroke, dyscirculatory encephalopathy, migraine, traumatic brain injury, multiple sclerosis, brain tumor, depression and others.

The most common is the cerebrovascular pathology, which is one of the leading causes of epilepsy in the elderly and makes up to 35 % among the other reasons of newly diagnosed epilepsy. It causes about half of all episodes of acute symptomatic seizures in 40 % of cases of epilepsy in patients older than 60 years. The risk of epilepsy in patients with cerebrovascular disorders is 20 times higher than in the general population [8, 15].

Epileptic seizures are often accompanied by changes in blood pressure and heart rate. Sinus tachycardia is the most frequent cardiac symptom which is accompanying various epileptic seizures (simple, complex partial, secondarily generalized tonic-clonic spasms) according to *Litvinenko N. V. et al.* it was detected during the epileptic seizures in 67—89 % of patients (> 120 beats/min). It precedes the clinical manifestations and EEG signs of an attack for a few seconds in 10—57 % of attacks and it is not the result of attack manifestations (including motor manifestations) and it is not caused by epileptic discharges in the structures of the temporal lobe of the brain [6]. Severe traumatic brain injury

leads to the development of epilepsy in 10—30 % of patients. According to Fryze W. seizures occurred in 1.8 % [17] of 272 patients with multiple sclerosis.

According to many researchers epilepsy and syncope are often wrongly diagnosed in clinical practice. These studies have shown that 20—30 % of patients diagnosed with epilepsy almost had syncope.

Epileptic seizures in patients with supratentorial brain tumors, according to the literature, are found in 30—60 % of cases. Quite often, the epileptic syndrome is the only clinical manifestation of tumors of the cerebral hemispheres in a long time, especially in benign course of cancer. Therefore, these patients are treated by psychiatrists and neurologists on epilepsy unreasonably long period of time. Thus, episyncope is the leading and often the only clinical symptom which is presented on meningiomas and benign gliomas. In glioma of I—II grade of anaplasia it occurs in 95 % of patients, in glioma of III grade of anaplasia — 85 %, while in glioblastomas — only in 49 %. Often seizures remain after surgery, even after total removal of the tumor [18].

Against the background of neurological disorders the changes of personality gradually occur with increasing of intellectual-mnemonic abilities, sometimes with psychotic states and the gradual manifestation of individual's degradation signs and dementia [15]. It is believed that at least one type of psychiatric comorbidity is observed in 5.9 to 64.1 % of patients among people with epilepsy [19, 20].

The presence of comorbid pathology in patients with epilepsy requires a comprehensive assessment of the patient not only by neurologist and other physicians and internists with a view to the differential diagnosis of the disease, the peculiarities of the course and prognosis. The adequate assessment of clinical and social prognosis in epilepsy is impossible without taking into account the nature and gravity of neurological, physical, mental, psychological and other disorders in patients. Therefore, a clear differential diagnosis of epilepsy is necessary for the adequate choice of a physician, the next therapeutic efforts and prognosis of the disease.

The medical problem of epilepsy patients is closely associated with the social aspects. It is a matter of loss or reduction of earning capacity, psychological and social adaptation, rehabilitation, education, choice of profession, employment, family making, adaptation to new environmental conditions.

A variety of reasons for the development of epilepsy, high frequency of the obliterated, without convulsions, atypical forms, comorbidity, the difficulties of differential diagnosis, the need for medical assistance of various specialists, the lack of information about the epidemiological characteristics of epilepsy in many countries of the world cause significant shortcomings in the providing of health care to the patients with this pathology. Therefore, more than 75 % of patients in the world do not receive adequate treatment.

Data on the epidemiology of epilepsy are necessary to create an adequate system of care. Based on the study of epilepsy and mortality due epilepsy we can represent losses for the society, the prognosis of the disease development, the opportunities for planning of medical care for patients with epilepsy, the necessity of antiepilepsy drugs.

The state of medical care for patients with epilepsy in Ukraine is not very different from other countries. Taking into account the diversity of clinical manifestations and comorbidity of epilepsy, especially those with mental disorders, registration and dispensary observation of patients with this pathology in Ukraine is carried out by neurologists and psychiatrists. According to the official health statistics, in 2013 the number of registered patients with epilepsy makes 0.25 %

of the population of Ukraine, which corresponded to 246.4 per 100 thousand of population, among them 74.6 % were persons of 18 years and older. Almost 50 % of them were under medical supervision of a psychiatrist. Children with epilepsy were registered in 46.9 % of neurologists, in psychiatrists — only 4.4 %, on condition that most of them had psychotic disorders and dementia due to epilepsy.

After 13-year period, the registered index of prevalence of epilepsy increased from 235.1 to 246.4 per 100 thousand population. Over the same period the ratio of the registered patients in neurologists and psychiatrists has also changed. In 2000, the neurologists had registered the patients with epilepsy of 80.3 per 100 thousand population, and in 2013 — 121.8 in psychiatrists, respectively, 154.8 and 144.6. Most likely these changes are caused by both the pathomorphism of epileptic manifestations and technical capabilities and improvement of the differential diagnosis of epilepsy, variety and quality of medications, expansion of social rehabilitation activities.

Individuals of working age out of the total number of epilepsy patients makes 63.6 %: at neurologists — 27.1 %, at psychiatrists — 36.6 %. The percentage of people above working age makes 16.6 %. The vast majority of them (75.9 %) were under the supervision of psychiatrists. A significantly larger number of the registered patients with epilepsy older than working age were observed in psychiatrists (the 122.7 per 100 thousand of the population), and neurologists (38.9). This is due to a higher presence of comorbid diseases, functional disorders, more severe cognitive and mental disorders than among young people. This is confirmed by studies of *Martin J. Brodie et al.*, who had found that the annual incidence of new cases of epilepsy (recurrent unprovoked seizures) are increasing from 65.9 per 100 thousand among persons aged of 65—69 years to more than 135, among individuals of 80 years and older, with an overall incidence rate of this pathology for 80.8 per 100 thousand in general population [21].

The incidence of epilepsy in Ukraine for 13-year period had decreased from 18.7 per 100 thousand of population to 16.3. At the end of 2013 the neurologists have registered 12.8 patients per 100 thousand of population, and psychiatrists — 3.5 patients per 100 thousand of population with the "first time in life diagnosed epilepsy". As a positive fact, it should be noted that registration of patients with newly diagnosed epilepsy at neurologists is more than at psychiatrists: persons of 18 years and older, respectively of 5.9 and 3.7 per 100 thousand of population; the working-age population — 8.6 and 4.1; older than working age almost equally — 2.7 and 3.0.

There were found the significant fluctuations in both prevalence and incidence in different regions. So, the prevalence in one of the Western regions, at neurologists, was 256.6 per 100 thousand population, and in the East — 72.4, at psychiatrists the situation is similar: in one of the regions it is 242.0 and in the other — 81.9. The same situation occurred in terms of incidence: at neurologists the deviations between regions has ranged from 20.9 to 6.0, at psychiatrists — from 10.0 to 1.1. These fluctuations reflect the inadequacy of approaches to the diagnosis of epilepsy, the registration of diseases and clinical supervision of patients.

Thus, in Ukraine, as in the other countries, there are problems of real prevalence of epilepsy in the population, the difficulty of differential diagnosis, monitoring patients in a variety of specialists, the lack of information about some medical forms of violations, the course of epilepsy in patients. This not only complicates the diagnosis, the selection

of appropriate treatment, prognosis, but also complicates the current and future events planning.

According to the tradition which was established in Ukraine in recent years almost 50 % of patients with epilepsy are under medical supervision of a psychiatrist. Among them 66.4 % have less severe non-psychotic mental disorders and often do not undergo the proper screening for neurological status and physical health, which reduces the quality of the diagnostic arsenal of medication and other health care measures for patients with epilepsy with comorbid disorders and their quality of life.

In order to standardize the diagnosis and treatment of epilepsy it is necessary to establish the medical standards, which would include both diagnostic and therapeutic measures for physicians of different specialties with regard to the stage of providing medical care to a patient with epilepsy.

It is also important to provide the clear signs of differential diagnosis with determination of the etiology of the pathological process, social and other factors influencing the development of the disease, its course and prognosis.

To study the epidemiological situation in Ukraine it is necessary to create a database of individuals who have symptoms of epilepsy. The leading objective of the register is to study the prevalence and course of epilepsy that will identify social, psychological consequences, to create an adequate system of care for patients with this pathology with the aim of improving the social, psychological, social life of the patient.

According to the WHO definition the epilepsy is a neurological, not a mental disorder. Therefore, it is necessary, first of all for neurologists and also for the primary care physicians in Ukraine, to improve health and social care for patients with epilepsy

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