

The relationship of psychological, clinical and biological components in epilepsy

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Abstract. This study examined the relationship patterns of psychological characteristics, clinical and biological indicators, their relationship in the structure of the personality of epilepsy patients. The aim of this work was to study the ratio of biological and clinical and psychological components in the structure of a person suffering from epilepsy. Such characteristics was conducted as the type of disease seizures and duration of the disease were taken into account: simple, complex partial seizures, duration of the disease up to 30 years dominated. The verification of the diagnosis in the patients examined was carried out on the basis of clinical and neurological, psychopathological, pathopsychological, EEG examination and computer tomography data of the brain. The study of biological, clinical and psychological characteristics of epileptic patients was carried out using the method of clinical observation, psychodiagnostic method "Diagnosis of satisfaction of basic needs." In patients with epilepsy revealed reliable multidimensional clinical and psychological characteristics of satisfaction of the main groups of needs: material needs, security needs, social (interpersonal) needs, the need for recognition, the need for self-expression. The considered characteristics are of interest to doctors, clinical psychologists and other professionals involved in preventive, therapeutic and rehabilitation measures of epilepsy patients.

1 Introduction

One of the most common psychoneurological diseases is epilepsy. According to the new definition of the International Antiepileptic League 2014, epilepsy is a brain disease that reveals itself in any of the following conditions:

1. At least two unprovoked (or reflex) epileptic seizures with an interval of more than 24 hours.
2. One unprovoked (or reflex) epileptic seizure and the probability of repeated seizures corresponding to the overall risk of recurrence (equal to or more than 60%) after two unprovoked epileptic seizures in the next ten years.

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3. Diagnosis of epileptic syndrome.

Let us consider the classification of epilepsies.

Classification of epileptic seizures (Kyoto, 1981)

I. Partial (focal, local) seizures

1. Simple partial (with retained awareness)

a). With motor manifestations: focal, motor, jacksonian, versive, postural, phonatory (vocalization or arrest of speech (speech block)).

b). With somatosensory or specific sensory symptoms (simple hallucinations): somatosensory, visual, auditory, olfactory, gustatory, with vertigo.

c). With vegetative symptoms.

d). With psychiatric (mental) symptoms (higher cortical functions impaired): disphatic, dismnestic, cognitive, affective, illusory, structural hallucinations.

2. Complex partial seizures (with a loss awareness).

a). With onset as in simple partial seizures.

b). With automatisms.

3. Partial seizures that turn into secondary generalized ones.

b). Complex partial seizures that turn into secondary generalized ones.

c). Simple partial seizures that turn gradually first into complex partial seizures, and then into secondary generalized ones.

II. Generalized seizures

1. Absence seizure (petit mal) with a loss awareness, with chronic, atonic, tonic, or autonomous components; or with automatisms that occur separately or in combination with each other.

2. Atypical absences with more evident tonic disorders compared to absence seizures; they don't begin and end abruptly, intermittently.

3. Myoclonic seizures.

4. Clonic seizures.

5. Tonic seizures.

6. Tonic-clonic seizures.

7. Atonic seizures.

III. Unclassified/Unknown

(Includes all types of seizures that cannot be classified due to inadequate or incomplete information, or seizures that do not fit in the categories described above).

International classification of epilepsies, epileptic syndromes and similar diseases (New Delhi, 1989)

1. Syndromes and epilepsy associated with a specific localization (focal, local, partial).

1.1. Idiopathic (with age-dependent onset):

- Benign childhood epilepsy with centrotemporal spikes

- Childhood epilepsy with occipital paroxysms

1.2. Symptomatic epilepsy: includes syndromes of high individual variability depending on the location of the focus, the type of seizures, the clinical picture and etiological factors.

Epileptic syndromes of unknown etiology are classified as cryptogenic.

1.3. Cryptogenic localisation-related epilepsy.

2. Generalized epilepsies and syndromes:

2.1. Idiopathic (with age-related onset):

- Benign familial convulsions of newborns (neonatal seizures)

- Benign convulsions of newborns (neonatal seizures)

- Benign myoclonic epilepsy in infancy

- Childhood absence epilepsy (petit mal epilepsy)

- Juvenile absence epilepsy

- Juvenile myoclonic epilepsy (impulsive petit mal)

- Epilepsy with grand mal seizures at the moment of awakening
- All other generalized idiopathic epilepsies, if they do not belong to any of the above categories, are classified as generalized idiopathic epilepsies.

2.2. Cryptogenic and / or symptomatic epilepsies:

- West syndrome (infantile spasms) (occurs at 3-8 months of life)
- Lennox-Gastaut syndrome (occurs at 2-5 years of life)
- Epilepsy with myoclonic-astatic seizures
- Epilepsy with myoclonic absences

2.3 Symptomatic:

2.3.1. Of nonspecific etiology:

- Early myoclonic encephalopathy
- Early infantile epileptic encephalopathy with a suppression-burst pattern on the EEG (Ohtahara syndrome).

- Other symptomatic generalized forms of epilepsy, not mentioned above.

2.3.2. Specific syndromes:

- Epileptic syndromes as complications of many diseases
- Diseases in which seizures predominate in the clinical picture

3. Forms of epilepsy that do not have a clear classification as partial or generalized

3.1. Having both generalized and partial manifestations:

- Convulsions of newborns (neonatal seizures)
- Severe myoclonic epilepsy in infancy
- Epilepsy with constant spikes and waves during slow-wave sleep
- Acquired epileptic aphasia (Landau-Kleffner syndrome)
- Cases that do not have certain features characteristic of generalized or partial epilepsies, for example, seizures during night sleep.

4. Specific syndromes

4.1. Situation-related seizures:

- Febrile seizures
- Seizures related to stress, hormonal changes, alcohol, drugs, sleep deprivation

4.2. Isolated, unprovoked epileptic episodes

The International League Against Epilepsy (ILAE), 30 years after the last revision, approved the Working classification of seizure types ILAE 2017 and the Classification of epilepsy types ILAE 2017. According to the 2017 ILAE classification of seizure types, seizures can be focal or generalized, and the onset of seizure is crucial. Focal seizures are divided into focal non-dyscognitive and focal dyscognitive (with a loss awareness). Several new types of generalized seizures have been added to the classification. Seizures are also classified according to the presence or absence of a motor onset. Unknown seizures are singled out.

The 2017 ILAE classification of epilepsy envisages three levels of categorization: seizure type (determined by the 2017 ILAE classification of seizure types), epilepsy type (focal, generalized, combined generalized and focal, unknown), and epileptic syndrome. The etiological diagnosis should be detailed as long as one gets more substantial findings during the diagnostics. Epileptic syndrome can have more than one etiology. The term "benign" has been replaced by the terms "self-limited" and "pharmaco-reactive", which are relevant for the respective cases. The term "age-related and epileptic encephalopathy" was introduced, which can be used either partially or completely depending on the clinical situation.

The main goal of antiepileptic therapy is to keep the upper hand on seizures, which implies: reducing the frequency of seizures, reducing their duration and minimizing the development of generalized seizures and, as a result, induction of remission. The main and

leading role in the treatment of patients with epilepsy is played by anti-seizure medication, which requires a fairly long time to be taken [1-4].

At present time, pharmacological therapy for epilepsy should rely on a rationally-adjusted regimen. Antiepileptic medicines are patient-tailored and targeted. There are many factors to consider: gender, age of the patient, the nature of seizures, frequency of seizures, disease duration, comorbidities; it is also important to take into account the way of life of a patient and his/her own preferences [5-7].

Epilepsy is a chronic disease that, in most cases, requires prolong and continuous antiepileptic therapy. It is established that to go into complete remission it takes at least 5 years of anticonvulsant therapy starting from the moment of the last seizure of any type. Only then can we talk about remission and withdrawal from antiepileptic medication [8-10].

Over time new drugs appear that are used in monotherapy and have an advantage over the combined therapy. At present time, the combined therapy of lamotrigine and valproate is the only well-documented synergistic scheme [11-16].

The considered problem of correlation of biological, psychological and social components, despite the novelty, has deep roots. The man - as one of the most complex systems on earth, contains a lot of indivisible parts among himself. The description of each part and their relationship will always interest humanity. In this paper we will focus on such parts of the man as a biological principle and psychological characteristics. After all, only after studying which of these parts prevail in a person will it be possible to get rid of many problems: cure some mental illnesses, explain people's behavior, etc.

A person is born with certain biological needs: the need for breathing, the need for food, the need for water, the need for shelter, the need for rest and work, the need for urination and defecation, the need for sexual activity. These needs of the body must be met as they affect the human psyche.

From the standpoint of the psychological platform, these structures of needs were considered by the theory of instincts. The theory was based on the biological needs and aspirations of mankind, which cause psychological determinants in the form of certain mental states and actions. The basis of this theory is that the structure of needs has an impact on the mental component of human life.

With many neuropsychiatric diseases, there are disturbances in various spheres of the psyche, and, quite often, in the need-motivational sphere: a heterogeneous group of dissatisfactions with indicators of mental, social, economic, political life appears.

Epilepsy is a common neuropsychiatric disease with a prevalence rate in the general population of 0.8 to 1.2%. This is an interdisciplinary problem, which includes many different aspects: biological, clinical, social, psychological, legal, economic, etc. A lot of work has been devoted to the development of new options for biological therapy.

A number of our works reflect the results of studies of the biological aspect, as well as the psychological component of epilepsy: features of the cognitive sphere [17-19], emotional-personal sphere of patients [20-22]. To improve the quality of treatment-and-prophylactic and rehabilitation measures, this contingent of patients needs to expand the scope of psychological and psychiatric research. The aim of this work was to study the ratio of biological and clinical and psychological components in the structure of a person suffering from epilepsy.

2 Materials and methods

The object of survey constituted 317 patients aged between 18 and 65 years old. When determining the form of disease and the structure of the leading paroxysmal syndrome, the modern classification of epilepsy (New Delhi, 1989) and epileptic seizures (Kyoto, Japan,

1981), the classification of ILAE 2017 seizures types were utilised. The survey focused on patients mainly with cryptogenic locally determined form of epilepsy, symptomatic focal epilepsy, whose disease structure was dominated by simple, complex partial (focal) seizures, with a disease length of up to 30 years. In the study sample, able-bodied patients accounted for 59.9 %, disabled – 40.1% of patients, the majority of patients had secondary special and secondary education (77.9% of patients). The survey involved patients without severe cognitive impairment. The diagnosis in the examined patients was verified against results of clinico-neurological, psychopathological, pathopsychological, electroencephalographic examinations and the computed tomography of the brain. The survey employed the psychodiagnostic technique <Diagnostics of the satisfaction of basic needs> [23]. With the help of this technique, the study of the degree of satisfaction of 5 basic needs was carried out: material needs; security needs; social (interpersonal) needs; recognition needs; need for self-expression.

Statistical Methods. To divide patients according to neurobiological, clinical, psychopathological, pathopsychological and social characteristics into homogeneous groups, based on the values of some measure of similarity between objects, the cluster analysis was made using the k-means method. Other hierarchical methods employed in the research were the “nearest neighbor” method, the “furthest neighbor” method, pair-group method using arithmetic averages, and the centroid method. The final clusterisation was completed with the help of the k-means method, which implied breaking the totality of objects into a previously known number of clusters in order to minimize the sum of intraclass variances. To assess clusterization, we employed significance levels of differences between the obtained centers for each of p variables. Moreover, the significance of value differences in the groups obtained by cluster analysis was examined using the Mann-Wehitney U test for independent samples and the confidence interval of the difference between medians (CI dMe). The research method is a statistical descriptive with an estimate of the relative frequency (%), (95% CI: 1.5; 28.5). In multiple comparisons the Bonferroni correction was employed to correct the corresponding p-values. In the first case, the differences were considered significant at $p < 0.05$. The practical implementation of the above methods was supplemented with applied statistical software package Statistica 10.0 [24,25].

Ethical aspect. The research surveyed patients who gave consent and signed informed consent statement.

3 Results and discussion

When studying the biological component of man, many researchers believed that instincts often play a large role. Among them are such as: the instincts of maternal love, capitalist accumulation, etc. [26, 27]. Z. Freud singled out two basic instincts: the life instinct and the death instinct. He believed that these instincts had an impact on the entire mental life of a person in all its aspects [28].

There are also other areas of studying the forms of a person's mental life: the study of habits, attitudes, customs, types of personalities, interpersonal relationships in different cultures, different societies in different circumstances.

Provided that the pattern of human behavior is due to the presence of innate instincts, then the customs of people would be the same. However, studies in the study of different cultures show that people are characterized by diverse forms of organization of their families, social positions, etc.

Social and psychological factors play an important role [29].

Personality is greatly influenced by biological needs. They affect all spheres of a person's mental activity: his thoughts, actions, desires. Such influence is in many respects mediated by the degree of satisfaction of needs in relation to this society.

In addition to biological needs, the nature of interpersonal relations is greatly influenced by the mode of production and the ownership of the means of production. Thus, the nature of relations between people depends on political, economic and historical factors.

When studying the ability of a person to educational activities, it was found that this ability is due to the influence of society, as well as the cultural possibilities of the development of society, educational abilities are dynamic, taking into account the influence of these factors.

In his works, E. Fromm identifies the following established personality traits: a sense of pride, responsibility, ambition [30].

The biological aspect is crucial in human needs. But, only in the process of interaction with the social structures of a certain society, the biological characteristics of the human body are transformed into a human being.

Biological structures of needs interact with production processes, forms of political economy, which affects human behavior, and in general, the whole mental life of a person, the nature of interaction with other people.

Various psychological characteristics of a person, both positive and negative, express biological and social indicators of relations between people.

As a result of the influence of social indicators of the human activity at the organic level, biological needs and social experience merged, which led to a change in the physiology of the human body and brain. We should not make a clear separation between biology and human psychology, since only their close interconnection can form the most complex and higher being on planet Earth.

Acquiring more and more new knowledge, getting a completely new practical experience of people forms the character and personality. As a result, man further and further pushes the framework laid down by biological instincts.

Recently, psychiatry has been postulated and is a topical biopsychosocial paradigm, in spite of this, therapeutic and prophylactic measures for patients with epilepsy need further development and improvement.

Prevention of mental disorders and promotion of mental health values, focused only on diagnostics, narrows the boundaries of psychosocial care for patients provided with the involvement of the patient's family, the immediate environment, contributes to psychophobia and stigmatization and, consequently, problems of quality of life of patients with epilepsy.

Most of the existing programs on counteracting stigmatization in the world are aimed at "correcting" the image of a mentally ill person who already exists, and not at creating another new image.

Work with patients, members of their families, their nearest environment, subjected to stigmatization, should be aimed at reducing feelings of guilt and shame, experiencing their own failure, adapting the family to new conditions and stigmatization, forming new social connections, taking into account clinical, psychological and biological components. One aspect of this problem is discussed in this study.

The results of a clinical and psychological study show that in patients with a zone of satisfaction with basic needs, they were distributed as follows:

1. Material needs, which constitute a group of physical needs that are satisfied with the help of material goods and services (for example, the need for food, housing, clothing, etc.) - a satisfaction zone (9% of patients), a zone of partial satisfaction (29% of patients) and a zone of dissatisfaction (62% of patients).

2. The need for security (factors threatening safety: illness, war, loss of loved ones, the problem of unemployment, etc.) - a zone of satisfaction (26% of patients), a zone of partial satisfaction (46% of patients) and a zone of dissatisfaction (28% of patients). If there is a zone of dissatisfaction with this need, a person directs all his efforts, in some cases ignoring his physiological needs, to eliminate and avoid factors that pose a threat to safety.

3. Social (interpersonal needs) reflect a person’s desire to be in the society of other people, to be an active member of society, to take part in the social life of society - a satisfaction zone (10% of patients), a zone of partial satisfaction (48% of patients) and a dissatisfaction zone (42 % of patients).

4. The need for recognition (reflecting the social status of a person) - a satisfaction zone (21% of patients), a zone of partial satisfaction (73% of patients) and a zone of dissatisfaction (6% of patients). The need for the value of their social positions, their social status, stable high self-esteem, recognition of the merits, competence.

5. The need for self-expression, reflecting the desire to have a good reputation, status, fame, excellence — satisfaction zone (32% of patients), partial satisfaction zone (49% of patients) and dissatisfaction zone (19% of patients). The results are shown in Table 1.

Table 1. Basic need areas.

Needs Satisfaction Zone	Area of dissatisfaction Relative Frequency (%)	Partial satisfaction zone Relative Frequency (%)	Satisfaction zone Relative Frequency (%)
Material needs	62%	29%	9%
Need for security	28%	46%	26%
Social (interpersonal) needs	42%	48%	10%
Need for recognition	6%	73%	21%
The need for self-expression	19%	49%	32%

The analysis of the research results shows that patients with epilepsy have heterogeneous zones of satisfaction with basic needs, which requires further more in-depth study in relation to various parameters and characteristics of the disease.

The main difficulties of patients with epilepsy, accompanied by mental disorders, are expressed in the problems of interpersonal interaction, compliance and maintenance of social parameters, the predominance of low thresholds of adaptation to stress factors, educational needs.

4 Conclusion

The focus of providing specialized care for patients with epilepsy in the direction of clinical, psychological, biological, social factors, taking into account the need-motivational

sphere, means attracting the patient's family, all specialists and services of medical institutions at all stages of the treatment process, methods of interaction of psychological, social and medical institutions to assist patients with epilepsy with the involvement of specialists in different directions.

On the one hand, a patient with epilepsy finds himself in a difficult situation, as he often finds himself in a stigmatized situation and is faced with the need to resolve and overcome arising problem situations. However, on the other hand, a number of patient families have resources that could be used to help the patient, to improve the social functioning of patients.

In order for this help to the patients to be effective in a practical direction, it is important to train doctors, psychologists, social workers, nurses in the skills of joint brigade work; training family members, immediate relatives of patients to interact with specialists in order to optimize the treatment and rehabilitation environment at home, taking into account the motivational and need sphere of patients; government support of anti-stigmatization in the society of this cohort of patients with a change in mentality in the direction of value orientations and the needs of patients.

Thus, we can draw the following conclusions:

1. The leading maladaptive factors in the field of needs in patients with epilepsy are: dissatisfaction with interpersonal interaction, dissatisfaction with maintaining social performance indicators (material needs, security needs, social (interpersonal) needs

2. The identified clinical-psychological patterns in the content of the sphere of personal needs in patients with epilepsy must be taken into account when developing recovery programs with regard to multidimensional characteristics including biological, psychological and social levels.

3. The modern study of psychology and psychiatry gives us an idea of a more developed form of man. Studying the effects of biological needs in the modern world, we can see their direct effects on the human psyche, and this means the possibility of a beneficial effect on the psyche of the individual, which is important for the treatment of many neurological and mental diseases.

4. The main ideas that need to be communicated to society: epilepsy does not always mean intellectual dysfunction; aggressive behavior is not always associated with mental disorders in epilepsy; ways of helping patients with epilepsy are multifaceted; epilepsy can be treated.

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