CLINICAL AND PSYCHOPATHOLOGICAL ANALYSIS OF EMOTIONAL AND COGNITIVE DISORDERS IN PATIENTS WITH TYPE II DIABETES

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https://doi.org/10.35339/ic.9.2.kon

Abstract

The psycho-emotional state has the most significant effect on the clinical picture and course of diabetes of any type. According to many researchers, it is known that patients with diabetes suffer from depression almost three times more often than patients without it. When the patient has symptoms of depression, his emotional state is disturbed, which quite often leads to the patient's refusal of the prescribed necessary treatment, and eventually decompensation of the somatic state occurs. In turn, it causes new episodes of depression, which requires the use of psychotropic drugs and psychotherapy. A comprehensive clinical-psychopathological and psychodiagnostic examination of 82 patients with type II diabetes of moderate and severe forms was conducted. The average duration of diabetes was (7.9±5.2) years. Emotional disorders are represented by anxious, depressive, astheno-hypochondriac, hysteroform variants of psychopathological symptoms. Cognitive dysfunction is a frequent complication of type II diabetes. It is associated with both the age-related aspect of the disease and the pathological dysmetabolic cascade that forms basis of the pathogenesis of diabetic encephalopathy development. Cognitive decline in type II diabetes has a mixed (vascular-degenerative) nature and is characterized by complaints of decreased working capacity, and is marked by a decrease in memory, auditory-speech and visual modalities, slowing of thinking, decreased concentration of attention, absent-mindedness, inability to focus on performance of a certain task for a long time. The analysis of cognitive functions using the MMSE method showed that the examined patients had mild or moderate cognitive impairments in the form of a decrease in verbal memory, a decrease in the speed of calculation operations, difficulty in orientation, and a decrease in indicators of the perceptual-gnostic sphere.

Keywords: *cognitive disorders, emotional disorders, metabolic disorders, depression.*

Diabetes mellitus is one of the most widespread human diseases. Prevalence of diabetes in the world has a significant tendency to increase. A comparison of the prevalence of diabetes shows that in developed countries a significant increase in diabetes is predicted for 2030 in people older than 65 years; at the same time, developing countries are characterized by an increase in the number of diabetes patients aged 45–64. Today, there are 371 million people with diabetes in the world, and by 2025, 552 million people with diabetes are expected. Epidemiological studies of diabetes mellitus in Ukraine demonstrate a constant increase in the number of patients. In various countries of the world, the number of patients with diabetes mellitus is (4–7) % of the total population [1; 2].

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Mental disorders in diabetes mellitus, depending on the contingent of examined patients, are found in (1.3–100.0) % of cases. Patients with diabetes are people with a chronic disease who, for the most part, can react sharply to their disease and its treatment. Such reactions are due to the awareness of the chronic nature of the disease with long-term, acute, progressive complications and the need for constant treatment. Diagnosing of diabetes is shocking for most patients and their families. As a result, psycho-emotional disturbances may occur [3; 4].

Psycho-emotional state is one of the most significant factors that affects clinical picture and nature of the course of diabetes. It is known that patients with diabetes suffer from depression almost three times more often than patients without it. With depression, emotional state is disturbed, which frequently leads to the patient’s refusal from prescribed necessary treatment, and over time, decompensation of the somatic state occurs. In turn, it causes new episodes of depression,

which requires psychotropic drugs prescription and psychotherapy [5; 6].

Nowdays, type II diabetes mellitus is considered the most important nosological cause of cognitive decline. In a number of studies, it was established that hyperglycemia and the duration of diabetes are associated with cognitive impairment, while the prevalence of mild cognitive impairment in the presence of type II diabetes is 20% in men and 18% in women over 60 years age [7; 8].

The above facts determined the relevance of this research, which purpose is to conduct a clinical-psychopathological analysis of emotional and cognitive disorders in patients with type II diabetes.

In order to achieve this goal, in compliance with the principles of bioethics and deontology, psychodiagnostic and clinical-psychopathological examination were conducted for 82 patients with type II diabetes mellitus of medium (84.1%) and severe (15.9%) degree of severity. The average duration of diabetes was (7.9±5.2) years.

Clinical-psychopathological research data indicate emotional and cognitive disorders in the examined patients.

Emotional disorders were represented by the following variants of psychopathological symptoms: 43.4% – anxious variant, 26.6% – depressive variant, 19.8% – asthenic hypochondriacal variant, 10.2% – hysteroform variant.

In the case of an anxious variant, there was a predominance of a general anxious mood background, unmotivated anxiety, a feeling of internal tension with the inability to relax, fussiness, motor restlessness, hyperesthesia, various kinds of fears and apprehensions, sleep disturbances.

The depressive variant was characterized by a low mood, feelings of longing, sadness; narrowing of interests, thoughts about own inferiority, ideas of self-blame and self-destruction, psychomotor retardation. Feelings of the hopelessness of own life, loss of the meaning of further existence, concentration of attention on the state of somatic discomfort, feelings of helplessness, doctor dependency were observed.

In the asthenic hypochondriacal variant, there is reduced activity and hypobulia, feeling of complete exhaustion with general inhibition, apathy, inactivity, indifference and focusing on the state of somatic discomfort, slowing of the pace of thinking, narrowing of associative processes.

The hysteroform variant was characterized by demonstrativeness, irritability, impatience, a tendency to paroxysmal affective reactions, focusing on the state of somatic discomfort, which was facilitated by vegetative paroxysms, more often of the cardiovascular type (a heavy feeling of pressure and tightness in the chest).

The conducted psychodiagnostic research revealed an increase in the level of situational ([55.7±6.1] points) and personal anxiety ([54.5±6.4] points) according to the Spielberger-Khanin Scale. 65.8% of examined patients had a mild, 11.5% moderate depressive episode and 56.1% of examined patients had mild, 40.3% moderate anxiety episodes according to the Hamilton Anxiety Rating Scale (HAM-A).

The personal profile of patients with diabetes was characterized by emotional lability, irritability, depression, isolation, and reduced sociability.

The study of the level of general asthenia according to the Scale of Self-Assesment of Asthenic State (SAS) showed an increase in score of general asthenia to (85.6±7.9) points, which corresponded to moderately expressed asthenia, which was formed due to damage to the neurons of the deep parts of the brain under conditions of diabetes.

Cognitive dysfunction was a frequent complication of type II diabetes, which is associated with both the age-related aspect of the disease and the pathological dysmetabolic cascade that forms basis for pathogenesis of diabetic encephalopathy development. Decreased cognitive functions in type II diabetes had a mixed (vascular-degenerative) nature and were characterized by complaints of reduced working capacity (85.6% of the examined), decreased memory of the auditory-speech and visual modalities (66.9% of the examined), slowing of thinking (58.3%), decreased concentration (71.3%), absent-mindedness (51.1%), inability to focus on a certain task for a long time (44.6%).

The analysis of cognitive functions using the MMSE method showed that examined patients had mild ([51.2±1.5]%) or moderate ([49.8± ±1.4]%) cognitive impairment in a state of decrease in verbal memory ([39.8 ±1.3]%), decrease in the speed of counting operations ([42.1±1.4)%, difficulty in orientation ([42.2±1.4]%), decrease in indicators of the perceptual-gnostic sphere ([39.8±1.3]%).

Evaluation of data of the correction (Bourdon) test showed a decrease in ability to concentrate, increase in fatigue, and a decrease in load tolerance. Maximum concentration on average for the group was noted in the second minute of the study, from the 4th minute a reaction of fatigue was noted. Simultaneously, 62.2% of subjects had

a "work-in period" – the largest number of errors was observed in the 1st minute of examination, the smallest – in the 3d minute. A further elevation in the number of mistakes is up to 6 minutes of the examination specified a decreasing attention span and brain tiredness.

Conducting a test for memorizing 10 words in 59.8% of the examined patients was revealed a decrease in the ability to concentrate attention, auditory perception and memorization, as well as a deterioration of working memory.

Based on the data obtained during the research, a complex program of comprehensive therapy of cognitive and emotional disorders of patients with type II diabetes was developed, including psychopharmacotherapy, psychotherapy and cognitive training.

Conclusions

This research indicated in patients with type II diabetes, mild cognitive impairment with emotional disorders, like anxious, depressive, asthenic hypochondriacal and hysteroform variants of symptoms. The results of a complex program of comprehensive therapy of cognitive and emotional disorders of patients with type II diabetes showed a positive dynamic of the emotional state, working capacity, concentration, ability to focus an memorize current events. So, its significantly improved of the quality of life.

In the future, it is planned to study younger patients with type I diabetes.

DECLARATIONS:

Disclosure statement

The authors have no potential conflicts of interest to disclosure, including specific financial interests, relationships, and/or affiliations relevant to the subject matter or materials included.

Data Transparency

The data can be requested from the authors.

Statement of Ethics

The authors have no ethical conflicts to disclosure.

Funding Sources

There are no external sources of funding.

Consent for publication

All authors give their consent to publication.

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Received: 11 Jul 2022
Accepted: 25 Oct 2022

Cite in Vancouver style as: Kondratenko AP. Clinical and psychopathological analysis of emotional and cognitive disorders in patients with type II diabetes. Inter Collegas. 2022;9(2):33-5. https://doi.org/10.35339/ic.9.2.kon