

FEATURES IDENTIFICATION OF COGNITIVE DISORDERS IN SCHIZOPHRENIA

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Abstract: *The review presents data on cognitive deficits in schizophrenia. The peculiarity of the clinical course and outcomes of schizophrenia is manifested in impaired ability to plan and maintain targeted strategies, which is the main symptom of cognitive deficit. The data presented in the review on the effectiveness and clinical and social significance of the assessment of the quality of life and the choice of second generation antipsychotics is the main criterion for determining remission in patients with schizophrenia.*

Keywords: *schizophrenia, cognitive impairment, social functioning, quality of life, remission, therapy.*

INTRODUCTION

At present, the protection of the mental health of the population is in the center of attention of scientists all over the world and is one of the priority areas of public health in the Republic of Uzbekistan. There is no social well-being without mental health. Schizophrenia is a severe mental illness of unclear etiology, characterized by polymorphism of clinical and biological manifestations, in most cases chronic, or with frequent exacerbations, a course, a high level of disability. Patients with schizophrenia need long-term treatment, constant psychiatric care with the use of a complex of psychotherapeutic and psychosocial influences that improve their psychosocial functioning and quality of life [3,4,9,10].

Recently, the number of works devoted to the comparison of cognitive deficits in various endogenous psychoses has been progressively increasing [6,38,39]. In a study by J. Zanelli et al. it is noted that neuropsychological deficits are characteristic of all endogenous psychoses, including schizophrenia and schizoaffective disorders [68].

Cognitive deficits are now considered a central feature of schizophrenia. The results of studies of neurocognitive disorders in patients with endogenous psychoses are widely and convincingly presented in modern special literature. There is sufficient evidence that cognitive impairment is often found in patients with endogenous psychoses, of which 44% suffer from schizophrenia, and the severity of neurocognitive deficits is 85% or more [54]. Many authors note the diffuse and rather rough nature of the detected disorders, which suggests generalized neurocognitive deficit [25,33]. At the same time, it is indicated that disorders of the functions of attention, memory and voluntary regulation are considered the most common [57].

Cognitive dysfunction is one of the central links in the etiopathogenesis of schizophrenia, and therefore it can be distinguished into a separate pathological cluster, by analogy with positive and negative symptoms [26,43].

Cognitive impairments occur even in the prodromal stage of psychosis, remain relatively stable throughout the course of the disease and largely do not depend on its clinical manifestations and antipsychotic therapy [22]. At the same time, a number of authors note the correlation of the severity of cognitive impairments with the progression of the schizophrenic process and the severity of positive and negative symptoms [3,4,5,7]. The parameters of cognitive functioning are important indicators of the level of social functioning of patients with schizophrenia, regardless of their clinical status [2,8,13,34]. A wide range of cognitive functions impaired by disease include attention, perception, learning ability, and psychomotor skills [1,15].

Cognitive deficits in schizophrenic patients are manifested in impaired ability to plan, initiate and maintain targeted strategies. In this regard, the question arises about the legitimacy of transferring these

data to the entire cohort of patients with endogenous psychoses, since the interpretation of the research results did not take into account factors such as the type of disease course and its duration, psychopathological characteristics of a manifest attack, the age of patients, and the duration of pharmacotherapy [33].

The authors have proven that neurocognitive disorders are present already at the onset of schizophrenia [52,55,58]; it is also known that certain neurological disorders are recorded during examination. Signs of structural abnormalities in the brain, such as expansion of the ventricles and cortical grooves, and a reduction in the volume of gray matter in the medial region of the temporal lobe, are neurovisual [63]. Many areas of the cerebral cortex are involved in the implementation of full-fledged cognitive control, including the dorsolateral prefrontal cortex, medial frontal cortex, and parietal regions [67].

MATERIALS AND METHODS

Neurocognitive deficit already at the stage of a manifest attack has a diffuse, non-localizable character, since patients differ from healthy subjects in most of the studied parameters [40,42]. Other authors point out that against the background of generalized impairment of cognitive processes, a selective deficit is revealed in the form of memory impairment and voluntary regulation of activity [27,52].

Studies on the relationship between the prefrontal cortex and working memory have led to the assumption that it is the prefrontal cortex that is the main lesion zone in schizophrenia, which leads to impaired working memory, performing skills, abulic symptoms, and behavioral disorganization. Interacting with the sensory, motor, and subcortical regions of the brain, the prefrontal cortex plays a major role in integrating information received from outside and coordinating the subsequent behavioral response [48]. New data on the role of cognitive deficit in the pathogenesis of schizophrenia have caused an increase in the number of studies aimed at studying the pathophysiological mechanisms of cognitive impairment and on possible ways of correcting them [14,15].

The appearance of positive and negative symptoms in the clinical picture of schizophrenia is a factor aggravating cognitive deficit. In addition, some studies have shown that people with schizophrenia have difficulty tolerating incomplete situations and ambiguities [28]. One meta-analysis confirmed the evidence that patients with psychotic depression have more manifestations of cognitive deficits than those with depression without psychotic symptoms [61].

There are currently three main hypotheses for cognitive impairment in schizophrenia. The first of these, the so-called diffuse, provides that patients with depressive disorder suffer from global or diffuse cognitive decline [45]. The second is the hypothesis of specific cognitive decline, which suggests that depressive disorder is associated with a marked decrease in specific cognitive parameters, mainly executive function and memory [19]. According to the third hypothesis, patients with major depression experience cognitive deficits when performing tasks that require cognitive efforts, while they do not show cognitive decline when performing automatic tasks. Automatic cognitive functioning implies a response to a stimulus, while tasks requiring cognitive tension include attention functions and cognitive abilities in general in response to presented tasks [36].

Some studies claim that patients with schizophrenia have more pronounced neurocognitive deficits [54]. Research into new mechanisms for treating cognitive impairment suggests that they are modified to some extent by both pharmacological and psychological interventions. Comorbid disorders can also have a significant impact on the outcome of the study of cognitive functions [22], especially when it comes to comorbid anxiety [46].

When all of these factors interact with each other, it becomes difficult to isolate cognitive impairments. Patients with schizophrenia differ in their cognitive profile, and with a high degree of probability it can be argued that different types of patients with schizophrenia have different profiles of cognitive deficits.

A.Scheurich et al. [59] suggested that the motivational aspect also affects cognitive impairment in depression, which is important in the treatment of depression. When it comes to major depressive disorder and long-term cognitive functioning, there are two perspectives on this issue. According to one point of view, cognitive impairment exists regardless of the clinical manifestations of depression [36]. According to the second, repeated depressive episodes worsen the state of cognitive functions [61].

There is growing evidence that symptom reduction in schizophrenia is not accompanied by an equivalent improvement in cognitive functioning. As a result, this leads to frustration, low self-esteem, and impairment of coping strategies in this cohort of patients. One of the arguments of the proponents of introducing cognitive deficits into the diagnostic criteria for schizophrenia is that it will help to differentiate between schizophrenia and affective psychoses. On the other hand, there is evidence of persistent cognitive deficits in schizophrenia, which complicates the use of parameters of cognitive functioning as a differential diagnostic tool [24,65]. Several meta-analyses have examined cognitive deficits in schizophrenia. Cognitive functioning impairments of varying degrees were found in the same groups of cognitive functions as in patients with schizophrenia, namely: speed of response to a stimulus, verbal memory, categorical thinking, ability to switch attention, vigilance [18]. Some authors have described the differences in the severity and frequency of cognitive impairment in schizophrenia and bipolar disorder [37].

Despite numerous studies of cognitive functioning in schizophrenia, there is still no consensus on neuropsychological deficits. The active course and repetitive psychotic episodes are characterized by disorganization of ideational processes, which are believed to be based on disturbances in the prioritization of stimuli and the connectivity of individual functional areas of the brain [41,47,56,60].

RESULT AND DISCUSSION

Cognitive impairments in schizophrenia, according to many studies, correlate with the loss of gray matter [20,21], persisting in the first years after the onset of psychosis [17,31,62,64]. This process is recorded even at the pre-manifest stage of the disease in persons with an ultra-high risk of developing psychosis, a decrease in the volume of brain tissue is observed compared to a sample of healthy volunteers comparable in age, persisting in the first years after the onset of psychosis [31,32].

Based on this, we can say that cognitive disorders in schizophrenia are heterogeneous in nature and are associated with certain stages of the disease.

The clinical significance of cognitive impairment in schizophrenia is key, as has been emphasized since its first descriptions. At the same time, despite a long period of study, in recent years there has been a renaissance of interest in this problem [44]. It is believed that cognitive deficit is detected even in the pre-manifest period and remains relatively stable throughout the course of the disease, being largely independent of the productive and somewhat less negative symptoms [23,31]. However, a number of works, nevertheless, describe the possibility of different dynamics of cognitive impairments [16,49,50], including even at the stage of premorbid. Thus, the lag in the cognitive functioning of children who later developed psychosis can be stable or increasing over time; in some observations, on the contrary, this lag decreases, narrowing the gap with children from a healthy group [30,53]. Similar results were obtained in domestic studies, which demonstrated different dynamics of cognitive deficit depending on the variant of the course of the disease [3].

In particular, it was shown that in patients with a remitting course of the disease during the manifestation period, cognitive deficit is generalized, and in remission, statistically significant improvements are revealed in almost all indicators, however, as a rule, not reaching normal values. In repeated attacks, cognitive dysfunctions again acquire a generalized character. At the same time, a baseline level of deficiency is also determined, which remains unchanged throughout the course of the disease. With an unfavorable course of the disease in the acute period, a less diffuse picture of cognitive disorders is noted; in dynamics, positive shifts in the cognitive sphere are more partial and differ in less intensity of their reduction [3].

Cognitive dysfunction is most responsible for disorders in the social functioning of mentally ill patients, and the search for effective methods for correcting these disorders is the most important task of psychiatric care. Motivational disorders and socio-cognitive deficits are at the forefront of schizophrenia research. New methods for assessing cognitive functions and therapeutic interventions aimed at working with them, including training of motivation and metacognitive training for psychosocial and cognitive therapy, allow us to consider the effectiveness of rehabilitation forms of assistance in an optimistic perspective [11].

Cognitive dysfunction is most responsible for disorders in the social functioning of mentally ill patients, and the search for effective methods for correcting these disorders is the most important task of psychiatric care. The cognitive status of patients and its impact on social functioning should be

constantly at the center of attention during therapy, since impaired cognitive functions affect family life, work, and learning ability [19].

Currently, there are no officially registered drugs from the listed groups in the arsenal of psychiatrists that have a proven protective effect on cognitive function in patients with schizophrenia, however, the search in this direction is quite active and the appearance of such drugs can be expected in the near future. However, there are already publications demonstrating the possibility of using atypical antipsychotics to correct cognitive deficits in patients with schizophrenia [9,10,29,35,51].

Cognitive deficit therapy is carried out in two directions: using biological methods and psychosocial treatment and rehabilitation. Probably, pharmacological agents are potentially unable to affect cognitive disorders formed as a result of long-term structural and functional disorders in the development of neurobiological systems, which, first of all, can be targeted by psychosocial approaches. Procognitive drugs that are potentially effective in schizophrenia include antipsychotics; dopamine agonists; agents that affect NMDA receptors; drugs that inhibit the reuptake of glycine; inhibitors of DAAO (D-amino acid oxidase), an enzyme responsible for the breakdown of D-serine, an endogenous co-agonist of NMDA receptors; ampakines (affect AMPA receptors); cholinergic drugs; agonists of nicotinic receptors of the 4th and 7th types; cholinesterase inhibitors; donors of acetylcholine, etc. [66].

Despite all the advances in molecular genetics and biology, progress in the development of drugs to improve cognitive functioning in schizophrenia has not been significant. To date, there is no consensus on the issue of the effect of second-generation antipsychotic therapy on cognitive functioning in schizophrenic patients, and on the use of adjuvant drugs to correct cognitive deficits [7,10,12].

Research in recent years has shown disagreement in the assessment of cognitive impairment in schizophrenic patients. The differences in the results of many studies are explained by different methodological approaches, such as the inclusion in the study of patients with different severity, different clinical forms and duration of the disease.

CONCLUSION

Studying the clinical and social effectiveness of assessing the characteristics of cognitive disorders and analyzing modern methods of treating patients with endogenous mental illness will help develop more effective therapy programs aimed at preventing relapse and improving the quality of life. Therefore, the task of finding new techniques is becoming more and more practical. For this, it is necessary to clarify the relationship between the clinical and social effectiveness of assessing the characteristics of cognitive disorders and modern methods of treating patients with schizophrenia. Justification and application of a new direction of differentiated therapy of cognitive disorders, taking into account the dynamics of clinical and sociological parameters, lead to stable remission. Allocation of patients with cognitive disorders of varying degrees to a separate group and determination of the effectiveness of psychopharmacotherapy in these conditions improves the quality of life of patients with schizophrenia.

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