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The conditions for the emergence of schizophrenia

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Summary

The work presents genetic, biological and psychological determinants of schizophrenia . Current knowledge about the etiopathogenesis of schizophrenia is incomplete and unclear, which determines scientists to conduct further research to thoroughly understand the causes of this disease. Understanding all conditions of schizophrenia can undoubtedly result in more effective treatment of patients in the future, prolonging remission periods and improving the quality of life of patients and their families.

Keywords : conditioning, schizophrenia, psychotic disorders

1. Genetic research

The results of family studies, related to schizophrenia, do not match any of the known algorithms for the inheritance of a genetically only disease . Modern theories referring to the inheritance of schizophrenia show the influence of genetic predisposition, which may be the result of previously unknown social, biological or psychological factors. Some of the studies indicated a correlation between the gene found in chromosome V and the familial existence of schizophrenia, but this was not confirmed in further studies. It has been proven that disorders of the linear movement of the knobs occur in the case of schizophrenic patients and members of their families. The finding of such a relation does not refer to all disorders of eye

movements in schizophrenia, however, this research procedure may have an impact on further research regarding the familial occurrence of this condition [1].

It is worth noting that independent research on the heredity of schizophrenia in terms of family research, adoption research and twins research points to the same conclusion. Persons who are in any degree related to a patient with schizophrenia are at an increased risk of becoming ill than people who do not have such relatives [2].

2. Biological aspects

One of the most interesting aspects of research on schizophrenia, which have been conducted over the last 20 years, was the development of the so-called biological models whose task was to explain symptoms in relation to manifestations of brain processes [3]. Studies on the frequency of schizophrenia in the families from which the patients originate show that in the biological relatives of patients suffering from schizophrenia, the risk associated with the incidence of this disease increases. However, they take into account modern research, the risk is smaller than previous studies have shown [1].

2.1. Research of parents and relatives

If both parents suffer from schizophrenia, the probability of developing schizophrenia for their child varies from 15% to 55%. In some studies on relatives of people with schizophrenia, a higher incidence of psychiatric disorders was highlighted, but not necessarily schizophrenia, while in some cases positive features , including creativity, were noted [1]. The importance of the disease on the family can lead to exacerbation of the course of the disease [4]. The relationship between genetic similarity and the risk associated with schizophrenia is certainly strong, but most importantly, even with the groups most exposed by genetic similarity, the risk does not exceed 50%. It can therefore be concluded that, despite the fact that genes have an impact, some environmental conditions are necessary to cause the disorder. One of the hypotheses regarding the causes of schizophrenia is the so-called the susceptibility hypothesis - stress. According to this theory, probably genetic factors cause an increased risk for the individual, but in order for this potential risk to evolve into schizophrenia, stressful environmental factors must appear simultaneously [2].

2.2. Research on twins

In one of the studies on twins it was shown that in the case of identical twins raised together, the concordance rate is equal to 91%, while in the case of twins raised separately, the percentage is 78% . In other studies on twins it was found that the incidence of schizophrenia in monozygotic twins ranges from 40% to 50%, and in twins twins 10% -14% [1].

2.3. Adoptive research

The adoption study allows more detailed than testing twins, separating the influence of genes from the impact on the environment [3]. Often they rely on the search for - adopted by the first days or weeks of life - the offspring of people who became ill with schizophrenia during their lifetime. In this situation, the child does not have any common genes with the adoptive family, which allows adequate separation of the genotype from the consequences of raising a schizophrenic patient. Heston was a pioneer of adoption research [5]. The risk of developing schizophrenia is not related to adoptive parents but to biological parents [6].

2.4. The functioning of the brain and biological markers

A different biological approach to research on schizophrenia is finding anomalies in the brains of the sick. Much of this research is based on brain imaging techniques that give the opportunity to compare the functioning and brain structures of the sick and control groups of

healthy people. One example is the demonstration during magnetic resonance imaging that in the patients with schizophrenia the brain chambers are almost 50% larger. MRI research has shown that schizophrenics have thinner areas of the frontal and temporal lobes of the cerebral cortex: in this case, the loss of nervous tissue is most likely related to the behavioral anomalies that occur in these disorders. Imaging techniques have shown that ill people may have different patterns of brain activity than in the case of a controlled group of healthy people. Studies on monozygotic twins, of which either or only one person suffered from schizophrenia, revealed that only really ill people with schizophrenia were distinguished by lower activity of frontal lobes. This model of the study gives the possibility to control genetic factors as being in a certain sense constant, as well as to show the influence of other biological aspects of this disease [2]. Morphological cerebral changes, apart from using computed tomography (CT) and magnetic resonance imaging (MRI), are also described in post-mortem stages of patients using neuropathological methods. These include enlarged lateral cortices, widened fissures and sulcus, suppressed physiological hemispheric asymmetry, reduced volume of limbic and paralimbal structures in temporal lobes [7].

2.5. Schizophrenia and pregnancy

In the case of schizophrenia, infectious conditions or traumatic perinatal or prenatal injuries as well as genetic factors that influence brain development in the first phases may also lead to a neurointegration deficit [7] . It is believed that congenital or acquired is not so much the disease itself as the vulnerability or determinants of the disease. During the interviews with patients, higher rates of complications during pregnancy and delivery complications are emerging. The possible infectious genesis signals an increased risk of disease in children of mothers who during the pregnancy were exposed to the influenza epidemic. Indirect conclusions derive from the fact that the majority of schizophrenic patients are born in the cold months of winter, which are conducive to viral infections [4].

2.6. Age and sex and schizophrenia

The risk associated with the occurrence of disease during life is equal to one percent. Usually, schizophrenia develops in the early years, although sometimes before puberty. In about 8% of cases examined, the disorders began around 65 years of age. This disease occurs almost as often in the case of women and men, however, in men it occurs earlier. There is no relationship between schizophrenia and pediatric autism [4].

2.7. Seasonality of birth and schizophrenia

It has been shown that both in the southern hemisphere and the northern one, the highest risk of schizophrenia is found in people who were born in early spring and late winter [1]. This may be related to the environmental impact on the mother and the growing fetus. Mortality in patients is twice as high in the general population [4].

3. Biological factors and hypotheses

Symptoms of schizophrenia may be associated with increased dopaminergic activity in the limbic system (these are the so-called production symptoms) and reduced dopaminergic activity in the area of the frontal lobes (so-called cavity symptoms). The foundations of this hypothesis are the psychotomimetic effects of drugs that increase the level of dopamine as well as the antipsychotic effect of dopamine receptor blockers [6]. The noradrenergic hypothesis is based on the assumption that an increased level of norepinephrine can affect the sensitivity of feeling sensory stimuli in the case of schizophrenia. The GABA hypothesis is associated with decreased GABAergic activity, which stimulates the activity of the dopaminergic system. The serotonin hypothesis assumes a reduction in the metabolism of

serotonin, which has a significant impact in impulsive and suicidal behaviors, which sometimes also occur in schizophrenics. Some endogenous amines may be substrates for abnormal methylation reactions that lead to the formation of endogenous hallucinogens [6].

4. Psychological aspects

Several times, attempts were made to create a psychological theory allowing to explain the symptoms of schizophrenia [3]. Recently, it was decided to move away from a holistic approach towards a model explaining the specific components of this disease [8].

4.1. Theory of positive symptoms

Hallucinations and delusions are the most known and common symptoms of schizophrenia. Despite this fact, these positive symptoms are still incomprehensible. It is important to understand that positive symptoms of schizophrenia occur in the area of mental life, where they are given to various processes [9]. It is difficult to understand why psychological theories did not significantly affect the understanding of hallucinations and delusions and the methods of their treatment. Currently, this is changing, and this situation has contributed to the acceleration of the emergence of several ways of psychological interventions, directed directly to relieve suffering associated with psychotic symptoms [3].

4.2. The neuropsychological theory

Neuropsychological models of schizophrenia seek to clarify the susceptibility of persistent psychotic symptoms and show biological abnormalities leading to the occurrence of psychotic experiences [10]. This means that neuropsychological theories include ways of functioning of the brain and causes of abnormal functioning during the period of psychosis. Some neuropsychological theories associated with schizophrenia are based on the assumption that the symptoms of the disorder are the result of a defect in selective attention, mistakes in the filtering system, which allows selection of what we want to follow (externally and internally), as well as allowing this to the conscious element stream of consciousness [3]. Some scholars thought that schizophrenic patients suffer from changes in the experience they are aware of, including sensitivity to perception and awareness of their surroundings, readiness to focus attention on matters that are not important, increased subjective vigilance and show over-the-head thinking [10]. .

4.3. The theory of susceptibility to psychosis

The concept of susceptibility to psychosis offers the best explanation for the existence of disorders associated with schizophrenia, such as borderline states or schizotypal personality disorders [11]. Schizotypal personality disorder has many common features with schizophrenia, but these features are milder [3]. In the United Kingdom, more attention is paid to dimensional aspects of schizotypy based on the concept of personality, while in North America schizotypy is treated as a concept based on the concept of disease. These two approaches are not mutually exclusive; North American researchers are susceptible to me saying that people, despite their "psychotic personalities", can still feel satisfaction with life or that they can positively perceive some of the features of schizotypy (eg states similar to dreams) [12].

4.4. Summary

Many of the psychological theories have attempted to explain the mental processes that may underlie the symptoms of schizophrenia. Psychological attempts to explain the delusions take into account the role of cognitive deficits and abnormal perception. Psychological theories of hallucinations define the occurrence of hallucinations as a human error in the

matter of feeling their own internal events with events that take place outside. The neuropsychological theories of schizophrenia seek to find an explanation of how biological damage leads to cognitive deficits that produce symptoms of schizophrenia. Theories of susceptibility to psychosis (schizotypy) provide information about the existence of psychological markers of psychosis that occur before the appearance of the disorder.

5. Cognitive - behavioral strategy

Cognitive-behavioral interventions in the case of schizophrenia focused on single symptoms, in particular on delusions and hallucinations [13]. The first, early attempts based on behavioral approaches that focused on behaviors that accompany symptoms (eg screaming for voices) [3]. These approaches used behavioral techniques to control such atypical behaviors and were based on descriptions of individual, individual cases, or the predominant change in behavior may lead to a reduction in tension and problems with psychotic experiences. In fact, the experience of tension that arises in connection with positive psychotic symptoms is the reason for the different behavior, in particular in terms of experience of anxiety or depression, or as in the case of persecutory delusions, indignation and anger [13]. As a result of various studies, the development of a new therapeutic method was initiated, in which the patients are used to teach new coping methods, built on those who find the patients useful. This is to reduce the frequency and severity of psychotic symptoms and the accompanying tension and to reduce the duration. This approach is called the strengthening of Coping Strategy Enhancement (CSE) [14]. CSE consists of two elements:

and) Education and contact exercise - includes work on the atmosphere and mutual communication, during which the therapist and the client have the opportunity to work together to improve the efficiency of dealing individually. Possibility to provide information to the client regarding schizophrenia.

b) Targeting the symptom - selection of a symptom, which is a goal, one that was previously the basis of an effective coping strategy [3].

6. Co-morbidity: depression and suicide

Schizophrenia may cause other psychiatric and psychological difficulties, including social anxiety, depression, excessive use of psychoactive substances, suicide [3]. This has a significant impact on the duration and descent of schizophrenia. The percentage of suicides suffering from schizophrenia ranges from 10% -15%. On the other hand, the coexistence of depression and psychosis is much harder to determine accurately, however, the estimates vary between 22% -75% depending on the adopted criteria. For a long time, it was thought that the appearance of affective symptoms is associated with a more favorable descent of schizophrenia, but this land has recently undergone a change . Suicidal thoughts and depression very often lead to a crisis, which in turn is associated with re- admission to the hospital, it promotes recurrence and suicide. The subjective feeling of hopelessness and depression by a sick person during the first admission to the hospital makes it possible to predict an earlier re-hospitalization. However, on the other hand, the existence of depressive delusions is associated with a more favorable fall of the disease [15]. The problem of getting depressed by an episode of psychosis has been tried to explain to many possibilities [16]. The creators of one of the views believed that the psychiatric depression may result from an individual response to changes resulting from a history of psychosis, ie a man experiencing restrictive changes in his life very often experiences loneliness and uncertainty about his own values . Others, like Roy, Thompson, Kennedy, thought that a patient exhibiting negative symptoms had a greater risk, because the symptoms significantly impede his or her life and ultimately lead to unwanted life complications. In turn, Barsen, Curson, Liddle and Patel noticed that experiencing deficits within thinking, perception or feeling affects the tendency to

depression and patients with chronic schizophrenia. Analyzes comparing people with schizophrenia together with people suffering from schizophrenia and depression simultaneously showed that psychosis is one of the main factors contributing to the occurrence of depression [15]. People experiencing depression are distinguished by better premorbid adaptation and a significant number of stressful life events. The duration of the acute phase of psychosis in these people is usually longer [3].

End

The work presents genetic, biological and psychological determinants of schizophrenia. Currently, we do not yet have full knowledge of the above conditions of the disease. Knowledge about the etiopathogenesis of schizophrenia is very important, because it is important for further impacts on patients, that is, both pharmacological treatment and support and psychological support. It also seems important to look after the quality of life of the patient. We hope that the immediate future and the further activity of scientists in the field of studying the conditions of schizophrenia, will deepen the already existing data as to the causes of the disease but also will be an impulse to explore ever new conditions of schizophrenia.

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