

## PRODROMAL PHASE IN THE DEVELOPMENT OF EARLY ONSET SCHIZOPHRENIC PSYCHOSIS - CASE REPORT

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Schizophrenia and other mental disorders are often preceded by prodromal changes in behavior that can last from several days to several years, indicating the beginning of psychosis. If the disease starts at an earlier age, especially in adolescence, the prodromal phase is more non-specific and difficult to detect. There is a large number of operational instruments used for clinical assessment and quantification of prodromal symptoms and "at risk mental state", as well as the predictive potential for psychosis. This paper describes the prodromal phase in the development of early onset schizophrenic psychosis, with the emphasis on gradual, several-month psychopathological accumulation and evolution of nonspecific and subclinical, prodromal symptoms to florid schizophrenic symptoms. *Acta Medica Medianae* 2012;51(2):19-24.

**Key words:** prodrome, schizophrenia, adolescence

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### Introduction

Early onset schizophrenia (EOS) involves the occurrence of disease between thirteen and nineteen years of age, including a subgroup of childhood onset schizophrenia - COS before the age of twelve (1). Epidemiological studies indicate that 0.1 to 1% of all schizophrenic psychoses begin before the age of ten, and 4% before the age of fifteen (1). The incidence of disease rises steeply during adolescence, with peak incidence between fifteen and thirty years of age (2).

Contemporary classification systems of mental disorders use the same diagnostic criteria for schizophrenic psychoses in children, adolescents and adults (3,4). The disorder is defined by the presence of positive (delusions, hallucinations, disorganized speech and bizarre, very disturbed or catatonic behavior) and negative symptoms (affective flattening, poverty of thought or speech, loss of interest in social relationships, inability to initiate or persist with the behavior that is directed towards the goal). Along with the symptoms' presence, functioning in the areas such as work activity, social relationships and caring for oneself is obviously below the highest level reached before the occurrence of symptoms, and in case of occurrence of disease in childhood

and adolescence there is a failure in achieving the expected level of social development (3).

Schizophrenia is a disease with chronic course taking place in three phases: prodromal, acute and chronic phase corresponding to changes in mental development (5). While in the acute and chronic phase of disease symptoms are easily observed, nonspecific symptoms that occur during the prodromal phase are often difficult to notice. In 80-90% of patients the disease begins with nonspecific symptoms, including changes in perception, thinking, mood, cognition, affect and behavior, and in 10 to 20% of patients the disease is rapidly developing without prior prodromal period (6). Typically, the earlier the age when disease begins, the more nonspecific and identifiable the prodromal phase is. Early onset schizophrenia is often associated with significant neurointegrative disorders including: reduced concentration, poor working memory, cognitive disabilities and intellectual dysfunctioning (7,8). These premorbid cognitive and social disorders gradually "flow" in the prodromal symptoms and signs long time before the occurrence of psychotic symptoms, which makes it difficult to establish early diagnosis of disease.

Operationally, the prodrome is defined by the time period from the first observed change in the functioning of an individual to the moment when diagnostic criteria for schizophrenic psychosis are met (6). This period can be considered as a continuum in which symptoms develop and intensify, increasing the risk of "outbreak" of psychosis. In relation to previous retrospective consideration of the prodromal period (9), the information about prodromal symptoms and signs is nowadays obtained through longitudinal studies that indicate "at risk mental state" (ARMS) or a

condition that suggests a high, but not inevitable risk of developing schizophrenia in the near future.

There is a number of operational instruments used for clinical assessment and quantification of prodromal symptoms, and "at risk mental state" (11-13). Contemporary studies and brain imaging techniques suggest neurobiological, neurocognitive and functional changes in prodromal patients with initial psychotic episode (14,15).

In an effort to detect prodrome more effectively, Miller, McGlashan et al. (10) report monitoring three groups of changes: changes in behavior, thinking and mood, noticeable decline in social achievement and alienation from family and friends (Table 1).

The literature data point out that individuals who meet the "prodromal criteria" based on a combination of the existence of schizophrenia in a family history of disease, presence of subsyndromic psychotic symptoms of disease and functional decline (10), are at a 20-30% risk of developing psychosis within one year (16-18).

This paper describes the prodromal phase in the development of early onset schizophrenic psychosis, with the emphasis on gradual, several-month psychopathological accumulation and evolution of nonspecific and subclinical prodromal symptoms to florid schizophrenic symptoms.

### Case report

A fourteen-year old patient from the surroundings of Niš was hospitalized at the Department of Children and Adolescent Psychiatry in August 2009 for the first time. Auto and heteroanamnesic data indicated that the month before the patient had changed his behaviour in terms of irritability, verbal aggression towards household members, mood swings with self-harm episodes. On two occasions, after a family conflict, he cut the upper arm skin with razor or threatened that he would drink dishwashing liquid. He was not interested in school, had poor concentration and difficulty to adapt to peer group. No traumatic event prior to admission was reported. Past history: He is the second child from the third regular pregnancy. He did not meet his biological father. Early psychomotor development had proper course. Prior to disease, his mother described him as shy, insecure and non-adaptable child. There was no information about the use of alcohol and psychoactive substances. During childhood, he often attended scenes of physical violence between the mother and stepfather, whose relationship was burdened with alcoholism and jealousy of his stepfather. As far as family history was concerned, his first-degree cousin (uncle) was diagnosed with schizophrenia and description of his state corresponded to the residual phase of disease.

During his first stay at the ward, his mental status was characterized by dysphoric mood, reduced self-esteem, occasional self-accusation, decreased voluntary dynamisms and sleep disturbances.

Additional diagnosis showed normal neuro-ophthalmological finding, regular EEG finding, and NMR finding without pathological changes in endocranium. Psychological testing showed that the adolescent was of average intelligence, hypersensible, prone to exhibiting dysphoric to depressive mood. Self-injury behavior was understood as an appalling act - the expression of serious emotional affliction.

On the first examination the diagnosis F 92 - mixed disorder of conduct and emotions was established according to the diagnostic criteria of the Tenth Revision of International Classification of Diseases and Related Health Problems (ICD 10).

Upon having been discharged from psychiatric ward, the patient was irregularly monitored in infirmary and administered poor medication therapy. Seven months later, in March 2010, he was hospitalized for the second time due to the intake of large quantities of drugs "which he found in the house." The reason for such a weird act was the patient's attention "to sleep the day away from school because he was afraid that he might be physically attacked." The mental status was characterized by interpretative aptitude to act against his peers in school, the experience of their malice and hostility which was accompanied by episodes of anxiety, more prominent social withdrawal and reduced efficiency. In the clinical picture aggressive relationship with household members was dominant with puerile and infantile behavior.

After three months of irregular check-ups, the patient accompanied by his mother revisited psychiatrist in May of the same year. He complained of insomnia, intense fear, which was the cause of not leaving the house alone, having difficulty to concentrate and collect thoughts with an occasional "incomprehensible" speech. The clinical picture showed the new psychopathological quality expressed as experience of special sensations in the body which the patient described as "flow and pain in the soul", paranoid ideation related to intentions and actions of other people, diffuse anxiety, complete disinterest in everyday life events, and the beginnings of religious aspirations manifested in the patient's efforts to "go to monastery and there seek salvation for his soul immediately after leaving hospital". In the following five months all forms of psychiatric treatment stopped.

In November, the patient was admitted emergently due to the development of paranoid-hallucinatory syndrome accompanied by prominent psychomotor agitation. According to heteroanamnesic data, he did not sleep for three nights, spoke to himself, communicated with angels and God, accused family members that "they want to kill him", and after physically attacking his mother, ran away from house and hid in a nearby yard, where he was found by police after several hours. The mental status was characterized by psychotic symptomatology with derealization and

Table 1. Prodrom detection by following three groups of symptoms (Miller TJ, McGlashan TH, Rosen JL, et al., 2003)

Changes in behavior, thought and mood:	Noticeable drop in achievement:	Allienation from family and friends:
Enhanced perceptual sensitivity Unusual perceptual experiences Magical thinking Vague fears Chaotic or incoherent speech Changed, unusual behavior Lack of emotions, social closure	Unexplained decline in the working or school effectiveness Lack of concentration and motivation Neglect of personal hygiene Ineptness, disorientation in everyday circumstances in dealing with stressors	Lack of interest in friends and usual extra-curricular activities, hobbies, sports, going out Increased experience of alienation, isolation The alienation or hostility towards family, resentment, paranoia

depersonalization, acoustic hallucinations of hearing voices of God and angels, dissociated thought process, unsystematic and diffuse ideas of relations, persecution causing tendency to pseudo-reminders, extreme anxiety and disorganized behaviour. Acute clinical condition required administration of high doses of potent antipsychotics with an accompanying psycho-educational and social treatment. The diagnosis F 23.2 - acute schizophrenia-like psychotic disorder was established (F23.2).

During the two-year monitoring of the patient, another psychotic episode was observed. The former course of the disease and structuring of symptoms was within the range of the process psychosis from schizophrenia spectrum.

### Discussion

Schaffer's study findings (19) suggested that children suffering from schizophrenic psychosis had had "prolonged" history of psychiatric symptoms with the first referral to a psychiatrist for almost two and a half years on average before the appearance of psychotic symptoms. Prodromal symptoms were associated with social withdrawal, loss of initiative, strange beliefs, school problems, neglect of personal hygiene and appearance, diffuse fears, dysphoric mood, unusual or bizarre behavior. Some adolescents exhibited opposing behavior, irritability, aggression, temper tantrum, and substance abuse.

Retrospective consideration of the period including the first referral to a psychiatrist to the outbreak of florid psychotic symptoms showed that all three groups of changes reported by Miller and McGlashan (10) were present in our patient with varying degrees of severity. On the first examination the diagnosis "mixed disturbance of emotions and behavior was established" which represents "at risk" diagnosis for further development of personality disorders and psychotic disorders. Given the specificity of juvenility, polymorphism of symptoms and risk of premature stigmatization, a careful differential diagnosis of various psychopathological manifestations in this period is required. Detection of endogenous psychosis is particularly "sensitive" and the clinical course and follow-up are sometimes decisive in this case.

Clinical monitoring determined that our patient met the criteria for "at risk mental state" based on a combination of attenuated psychotic

symptoms and psychosis vulnerability due to hereditary burden of psychiatric illness. We were guided by the criteria of Comprehensive Assessment of At-Risk Mental State, (CAARMS, Yung et al. 2002) (20) that include the presence of: 1) attenuated (subclinical) psychotic symptoms of particular severity and frequency that appeared in time period shorter than one year: influence ideas, odd beliefs or magical thinking, perceptual abnormalities, odd thinking and speech, paranoid ideation, odd behavior or appearance (the attenuated positive symptom group - APSS), 2) transient psychotic symptoms that meet no criteria of psychotic disorder due to limited frequency or duration (brief limited intermittent psychotic symptoms - BLIPS) and 3) genetic risk (vulnerability group) and deterioration of functional capacity affecting those individuals who exhibited significant functional loss capacity within previous year and meet the criteria for DSM-IV schizophrenic disorder and / or have a first degree relative diagnosed with a psychotic disorder. It turned out that CAARMS was useful in predicting the development of psychosis 40-45% of people over a period of six months to a year, indicating that this device had an increased sensitivity in the late prodromal stages.

The risk for the occurrence of schizophrenia among "prodromal individuals" was discussed, among other things, in the Hillside Recognition and Prevention Programme (RAP, Hillside Hospital, New York). The prospective study included 54 adolescents of average age 15.7 years, predominantly male, demonstrating suspected prodromal symptoms of schizophrenia (21). During the three-year follow-up (1998-2001) three clinical high-risk groups were distinguished. The first group consisted of patients with attenuated negative symptoms (social withdrawal / isolation and school problems) or attenuated disorganized symptoms (neglect of personal hygiene, deterioration in role functioning). It was pointed out that in this group true prodromal individuals at risk of developing schizophrenia could be identified (21). The second group included adolescents who were considered to be in a later prodromal phase on the basis of attenuated negative / disorganized plus attenuated positive symptoms according to McGlashan and McGorry criteria. The third group of patients had psychotic symptoms without meeting criteria for schizophrenia due to insufficient or inadequate duration of symptoms and the expected level of functional deterioration. It was marked as a group with

schizophrenia-like psychosis. It was confirmed that this group had the greatest predictive potential for psychosis, given that the majority of patients developed schizophrenia. From two other clinical risk groups, after a further six-month follow-up, a number of patients had deterioration of symptoms and disease exacerbation despite conducted pharmacological and psychosocial treatment (21).

The prodromal phase lasted for sixteen months in the case reported. This finding is consistent with the literature data showing that prodromal phase lasts for 52,7 to 98,5 weeks on average (22). The prodromal phase prior to the onset of first psychotic episode lasts much longer in relation to the relapse prodromal phase that appears in the following psychotic episodes. The Mannheim ABC schizophrenia study (23) showed that negative and non-specific symptoms relating to discrete cognitive-perceptive abnormalities had occurred five years averagely before the first psychotic symptoms and 6.3 years before the first hospitalization.

In the case of our patient, cognitive perceptual abnormalities and cognitive disorders were not recorded as the dominant subjective experience in the early prodromal phase. However, many studies including Cologne Early Recognition CER Project indicate that the presence of these "self-observed" symptoms in the area of attention, thought and perception may predict development of schizophrenia with a 70% probability (24). Our study indicated the relationship between the duration of prodrome and psychopathological symptoms manifested. In the group with short duration of prodrome, from one to twelve months, the most prominent psychopathological symptoms were subjective experience of altered intensity or quality of the acoustic stimulus, occasional difficulties in speech production and the ability to understand speech as well as the experience of derealization. Medium duration prodromal phase (thirteen to seventy two months) and long duration

prodromal phase respectively (longer than seventy two months) (24) were characterized by thought pressure described as a subjective experience of the rapid alterations of random thoughts along with the disorder in the production and the ability to understand speech, altered perception of faces and bodies of others and hyperdistractible attention implying decreased discrimination ability of idea and perception, fantasy and true memories, hypersensitivity to light and certain optical stimuli, altered perception of his own face and complete attention disorder.

### **Conclusion**

To conclude, it is necessary to provide more detailed description of initial prodromal symptoms and signs and carry out studies on the evolution of prodromal to psychotic symptoms in order to identify individuals who are at high risk of developing psychosis. In the prodromal stage there are two possible courses of action: treatment of presenting symptoms, behavior, or disability and prevention of development of subpsychotic symptoms to psychotic. The prodromal phase and the first psychotic episode psychosis represent the most sensitive period for the disease course modification. Taking into account the fact that early onset schizophrenia is associated with bad course and prognosis, early recognition and intervention in young patients is of primary importance. In the case reported discontinued treatment, unrealized compliance and social factors exacerbated the process of adequate monitoring and intervention, despite recognized prodromal stage and the progressive enrichment of psychopathology.

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## **PRODROMALNA FAZA U RAZVOJU SHIZOFRENE PSIHOZE SA RANIM POČETKOM - PRIKAZ BOLESNIKA**

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Šizofreniji, kao i drugim psihotičnim oboljenjima, često prethode prodromalne izmene u ponašanju, koje mogu trajati od nekoliko dana do nekoliko godina, nagoveštavajući početak psihoze. Ukoliko bolest počne u ranijem uzrastu, posebno u adolescenciji, prodromalna faza je nespecifičnija i teža za prepoznavanje i intervencije. Postoji veći broj operacionalnih instrumenata kojima se klinički procenjuju i kvantifikuju prodromalni simptomi i „rizično mentalno stanje“ kao i prediktivni potencijal za psihozu. U radu je opisana prodromalna faza u razvoju šizofrene psihoze sa ranim početkom, sa naglaskom na postepenom, višemesečnom obogaćivanju psihopatologije i evolucijom nespecifičnih i atenuisanih (subklinički) prodromalnih simptoma u floridne šizofrene simptome. *Acta Medica Medianae 2012;51(2):19-24.*

**Ključne reči:** *prodrom, šizofrenija, adolescencija*