Case Report

Body-build and Schizophrenia: A Clinical Context

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ABSTRACT

A case of a 31-year-old man with a history of schizophrenia with an unfavourable course, specific heredity and morphophenotype, characterized by combination of an asthenic bodybuild, a gynecomorphic somatic sex maturation, and multiple regional morphologic dysplasias. The given observation shows a case of development of negative symptoms, manifested by diminished emotional expression and avolition being formed after experienced hebephrenic episode of schizophrenia. The disorder manifested at the age of 17 years by changes of behavior and pre-morbid personality traits, the symptoms developed in the form of irresponsible and unpredictable behavior, and mannerisms. The first hospitalization was at the age of 21 years, the patient took olanzapine 10 mg a day. In the process of disorder development the tendency to social isolation gradually progressed and the steady flattening of affect and loss of volition were formed which were constantly present in the patient throughout several years. The second hospitalization was at the age of 30 years in the course of which the change of the drug to clozapine at a dose of 300 mg a day was made. The presented case shows a role of constitutional factors in the clinical presentation of schizophrenia in the context of which the main anthropological approaches which are applied in psychiatry are described and results of study of association between body-build and schizophrenia in the studies based on the Heath-Carter method and the technique by V.V. Bunak are discussed. Lack of universal classification of constitutional types which would allow bringing uniform methodical base for creation of prognostic models of development of schizophrenia and other mental disorders and physical diseases and confirmation or denial of hypotheses of constitutional predisposition to this or that pathological process is emphasized.

MeSh Headings/Keywords: Schizophrenia; Negative symptoms; Anthropometry; Somatotype; Somatic sex maturation; Morphologic dysplasias

Introduction

The foundation of the systematized research of association between bodybuild and mental processes was laid by Kretschmer [1] who has distinguished three main constitutional types: asthenic, athletic and pyknic. Also he has described the dysplastic types of bodybuild which are representing deviations from average type and finding close association with endocrine pathology. He noted sharp predominance of asthenic-athletic group over pyknic one and a high frequency of dysplastics among patients with schizophrenia. At the same time the researcher repeatedly emphasized that a bodybuild and psychosis do not stand to each other in the direct relation, i.e. the bodybuild is not a psychosis symptom. All conclusions of E. Kretschmer were based on anthropomorphoscopic examination of patients which did not allow receiving population scope, and the assessment of the bodybuild was limited to descriptive characteristics. A little later W.H. Sheldon described the musculo-somatotonic type apart [2], and his research agrees with Kretschmer [1] to a large degree. Contrary to E. Kretschmer's conclusions, in the study by Kornetov [3], lack of significant differences in the bodybuild of patients with schizophrenia as compared with healthy persons was shown. In group of patients an association of a pyknic somatotype with episodic course of schizophrenia and asthenic with the continuous and progressing course, the gradual initial period and more severe negative symptoms was found. In case of normosthenic (intermediate) constitutionally morphological type the progressing course of schizophrenia with predominance of positive symptoms was observed. In this study the type of the bodybuild was considered based on the ratio of height with a cross diameter of the thorax according to the formula of the Rees-Eysenk index [4] and was defined by the integral characteristic of "constitutionally morphologic type", on the assumption of earlier research by Kornetov [5].

As the main integral anthropometrical indicator, the constitutionally morphologic type is closely associated with other characteristics of the bodybuild, in particular, with the somatic sex maturation which is a phenotypical sign of ontogenesis and the psychophysical constitution. Morphometric parameter of somatic sex maturation is the index of sexual dimorphism by Tanner being calculated according to a difference between biacromial and bicristal diameters and allowing to classify the bodybuild according to predominance of width of the shoulder girdle or the pelvis that is in detail described by Brooksbank et al. [6]. When studying the bodybuild of patients with schizophrenia in several regions, Kornetov [7] showed a high incidence rate in them of gynecomorphic somatic sex maturation. In the same study the association of the gynecomorphic constitution with

multiple regional morphologic dysplasias in this group of patients was shown.

Morphologic dysplasias can act as a marker of disturbances of the prenatal development and, therefore, can serve as a vulnerability factor to development of pathology. Concerning schizophrenia, a number of studies is known in which this problem was investigated and data on the association between of morphological dysplasias and this disorder is obtained [8-10]. The association of the dysplasias is highlighted especially which are localized in the area of the cranium, with disturbances of brain processes [11,12] that induces development of studies of brain pathology in schizophrenia by means of neuroimaging [13,14].

In the present report a case of schizophrenia with an unfavourable course in the patient with family history and morphophenotype, characterized by combination of an asthenic bodybuild, a gynecomorphic constitution and multiple regional morphologic dysplasias is demonstrated.

Case Report

A 31-year-old man who is repeatedly hospitalized in a psychiatric hospital. Psychopathological family history along the line of his father and mother - schizophrenia and mental retardation, respectively. The grandfather along the line of the father suffered from alcohol dependence, has committed suicide. The patient was born from the first pregnancy, was the only child in the family. Being two years old he had measles, being three years old - chicken pox, without complications. During the preschool period he was capricious, was brought up by his grandmother along the line of mother. During the school period he became a little quieter, but remained restless. He badly slept at the nights, often screamed in a dream, the involuntary night urination was observed several times. At the age of 15 years progress in studies decreased, he did not prepare for lessons that he explained to parents with lack of interest in study. He hardly left secondary school, stopped communication with peers. At the age of 17 years he came to construction technical school, but in half a year threw up it as he was not able to learn material. The behavior sharply changed during this period. He became rough and free, showed oppositional behavior in relation to seniors, smoked much lying in bed. In response to remarks of mother he responded violently, laughed loudly or became spiteful, used bad language in her address. He was afraid of the father, retired to the room when the father came back from work. He did not show interest in anything, was irritated and was rude when mother or grandmother forced him to do household chores or to go to a shop. A lot of time he lay in. In communication he showed mannerisms. Periodically he giggled when watching TV or looking at people in public places, explained that they "make snoots" at him. Once he told the grandmother that he saw "small ridiculous imps" in a window of the neighboring house who watched him, and also that the dog in the street understood his thoughts and nodded to him. At the age of 21 years for the first time at insistence of parents he came to a psychiatric hospital. In the ward he did not communicate with anybody, often squatted in a corridor, laughed at the passing medical personnel or other patients, subsequently explained to the doctor: "They have horns on the head, it is ridiculous". Once, when the nurse washed the floors in a corridor, jumped and began to run, representing skating. In hospital room, lying in bed, he covered himself to the top of his head with the blanket, turned away to the wall at the entrance of the doctor. During therapy with olanzapine 10 mg a day the behavior and thinking were ordered. He became a little more sociable, reported that "he wants home, to the grandmother". With the diagnosis "hebephrenic schizophrenia" according to criteria of ICD-10 he was discharged with the recommendation of observation by the local psychiatrist. After discharge he regularly took in olanzapine at the same dose under control of mother. He did not aspire to work, was engaged in empty pastime, lay long on the sofa. He did not wash, practically did not communicate with peers, once a month exchanged calls with the friend with the purpose to meet and drink beer. Practically he was interested in nothing, only watched animated films, smoked. He was reticent with parents, stayed in his room, and muttered something. Seldom, he talked only to the grandmother, generally in monosyllables answering her questions. He refused to visit social services. At the age of 30 years he came to a psychiatric hospital at the initiative of parents again, in the mental status of the patient severe negative symptoms in the form of apathic-abulic disturbances, poverty of the speech and thought were observed, the diagnosis was changed to residual schizophrenia according to criteria of ICD-10.

Mental status

Patient looked untidy, hair was not brushed. He sniffed, looked at the doctor, having blinked the eyes. Man sat in the closed pose, having stooped, avoided visual contact. The look was monotonous; he periodically extended lips, grimaced. At inquiry for some time he became intense. Patient entered conversation reluctantly, the disintegration of thought was observed, and in the same way he repeated that he "is well". Periodically he became silent, ignoring questions of the doctor, at the same time he began to look for cigarettes in a pocket. In the ward he kept detached, sometimes, squatting in a corridor, continuously monotonously muttered something, looking at surrounding patients. He did not show interest in treatment and terms of discharge. Patient spent in bed much time, made impression of a dozing person. He did not join in labor processes, ate food and carried out hygienic procedures only after a reminder of medical personnel and under their control. The focus of interest was limited, the lexicon was poor. The hallucinatory-delusional symptoms were not revealed. Memory was not disturbed.

Physical-morphologic status

Height 175 cm, an asthenic bodybuild, the Rees-Eysenk index 108.7, somatic sex maturation corresponds to gynecomorphic type, the Tanner index 88.0. The dolichocephalic cranium, an adenoid nose, dysodontia, congenital ptosis, hypoplasia of thoracic muscles, and clinodactyly rudiments were identified by somatoscopy.

Laboratory and instrumental investigations did not reveal the substantial deviations from norm indices.

Due to low efficiency of treatment the change of drug to clozapine 300 mg a day was made.

Discussion

The given observation shows a case of development of negative symptoms being formed after the experienced hebephrenic episode of schizophrenia, with constitutional-morphological features in the patient in the form of combination of an asthenic somatotype, gynecomorphic somatic sex maturation with multiple regional morphologic dysplasias. This combination of morphophenotypical signs was in detail described in the studies by Kornetov [3,5,7] and testifies to an unfavourable course of the disease and the predicted increase in negative disturbances in the clinical presentation. In the patient the low level of clinical and social indicators was noted. Against the background of progressing loss of social skills the patient needed continuous guardianship from parents and social rehabilitation.

In world psychiatric literature there is no uniform methodology of carrying out morphometric investigations for identification of associations with clinical indices. In relation to schizophrenia it is possible to note that even many cohort studies consider only some morphometric data, for example, associations of low weight and/or height at the birth with risk of the subsequent development of schizophrenia [15-18]. Research of sample of men showed that in schizophrenia reliably smaller height in comparison with group of control was found [19].

In the discussed context the studies with calculation of integral indexes of the bodybuild are more evidence based. Now two approaches are of the greatest clinical value.

The first of them is the Heath-Carter method [20] applied in a number of psychiatric papers. In particular, comparison of types of bodybuild of patients with schizophrenia and bipolar disorder showed differences according to mesomorphic and endomorphic bodybuild in samples as a whole and on all three components of each type separately [21]. When comparing incidence rate of somatotype in patients with schizophrenia and healthy people it was revealed that in male part of sample in schizophrenia the ectomorphy in comparison with control group was found more frequently, in women such differences were not revealed [22]. Another study [23] showed that between patients with schizophrenia and healthy people there are no differences in distribution of somatotypes. However, in group of patients it was revealed that somatotype means of paranoid and disorganized types were significantly more homogeneous (with greater values of ectomorphism) than undifferentiated type.

Alternative to the Heath-Carter method is the technique by V.V. Bunak which is used currently in modification by Chtetsov [24]. It means a possibility of an assessment only of indicators of measurement of the bone skeleton which is in adults an ontogenetically more stable structure in comparison with muscular and fatty components of structure of the body showing considerable variability during life. Measurement of bone indexes formed the basis of the mentioned studies by Kornetov in schizophrenia [3,5,7] and was developed into conception of clinical anthropology in medicine [25] setting a task of study of individual and typological variability of a phenotype and biopsychological traits of the personality of the patient for assessment of their clinical-pathogenetic, predictive and therapeutic value [26]. The main methodological idea of clinical-anthropological model of medicine consists of the simultaneous and interfaced analysis of the characteristics representing the patient's phenotype and semiotics structure of an illness with its anatomic-physiological features. According to this concept causality of a disease state will be determined by the fact of interaction of internal genetic and external environmental factors with properties of the "responding" substratum at different hierarchical levels of its organization which are generalized on the integrity called constitution of the person.

Respectively, identification of association of the constitution with risk of development and clinical manifestations of various disorders can become practical application of anthropological approaches in psychiatry. However, still there is no universal classification of constitutional types which would allow to bring uniform methodical base for creation of prognostic models of development of various diseases and confirmation or denial of hypotheses of constitutional predisposition to this or that pathological process. Obviously, this remark is fair also for other sections of medicine in relation to the theory about the constitution.

In conclusion we will note that the diagnostic assessment of schizophrenia undoubtedly always has to be based on integration of all information on the patient. Clinical data as in psychiatry still for diagnostics clinical criteria and rating scales which were widely adopted in the last decades are used are of key value. It is also necessary to consider variety of the biological, psychological and social factors forming a unique way of life of the patient, and exerting impact on the course of the disease. Among the biological factors defining the course of a disease and probably the response to therapy are constitutional ones. The presented clinical case of an adverse course of schizophrenia in the patient with an asthenic somatotype, a gynecomorphia and multiple regional morphologic dysplasias shows that the consideration of this constitutional triad at the stage of onset of disorder allows to predict development of negative symptoms and to select adequate treatment in due time.

Competing Interests

The authors declare that there are no competing interests regarding the publication of this paper.

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Submitted Sep 26, 2016
Accepted Sep 28, 2016