

# CLINICAL FEATURES OF HEART RHYTHM DISTURBANCES IN YOUNG PATIENTS AGAINST THE BACKGROUND OF UNDIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA

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**Abstract.** *Undifferentiated connective tissue dysplasia has a high prevalence in the population, and with a significant risk of developing multiple organ pathology. UCTD has a progressive course, affects the functioning of many organs and systems, moderates the clinical picture of the underlying disease, contributing to an atypical and protracted course, low effectiveness of therapy, and early disability of patients. Considering the facts of sudden death in young patients with CTD and their high risk of developing fatal arrhythmias, a comprehensive assessment of changes in the cardiovascular system is necessary. This will make it possible to determine prognostic criteria for the course and early diagnosis of complications of cardiac arrhythmias in patients with signs of CTD, thereby affecting the quality of life and delaying the period of disability. The aim of the study to study the clinical features of heart rhythm disturbances in young patients against the background of UCTD.*

**Keywords:** *undifferentiated connective tissue dysplasia (UCTD), connective tissue dysplasia (CTD), cardiovascular diseases (CVD), heart rhythm disturbances (HRD), coronary heart disease (CHD), arterial hypertension (AH).*

**INTRODUCTION.** Undifferentiated connective tissue dysplasia (UCTD) has a high prevalence in the population, and with a significant risk of developing multiple organ pathology. Research data on the prevalence of UCTD in the population is ambiguous (Domnitskaya TM, et al., 2015) - from 13% to 85% (Zemtsovsky EV, 2018), which is due to the vagueness of the phenotypic characteristics taken into account (Bravo IP, 2006.), the lack of an integrated approach to understanding Problems. This reduces the effectiveness of medical care and neutralizes the true data on the prevalence of pathology.

UCTD has a progressive course (Nechaeva G.I. and Soaig, 2006), affects the functioning of many organs and systems, moderates the clinical picture of the underlying disease, contributing to an atypical and protracted course, low effectiveness of therapy, and early disability of patients (Genova O.A. 2011). UCTD negatively affects the condition of the organs of the reproductive system and complicates the onset and course of pregnancy in women. The diagnosis of UCTD is more often established in people of working age, conscription age and fertile age, which significantly aggravates the severity of the disease, leads to limited professional choice, unsuitability for military service, early disability, decreased quality and reduced life expectancy. The foregoing indicates the undoubted promise of the clinical direction in the study of UCTD.

Cardiovascular pathology is the main cause of disability in the adult population throughout the world. According to the World Health Organization, more than 9 million people die from

CVDs every year. Aging populations and changing lifestyles mean they are increasingly affecting developing countries.

In different age groups, the structure of diseases of the cardiovascular system is heterogeneous. In people over 45 years of age, coronary heart disease (CHD) and arterial hypertension (AH) predominate. At a younger age, non-coronary heart diseases are common, characterized by “minor” clinical manifestations, but requiring no less close attention from the clinician due to possible complications. In most cases, one of the first clinical manifestations of cardiovascular system pathology at a young age are heart rhythm disturbances (HRIs). According to the American Heart Association, NSDs claim from 300 to 600 thousand lives, which is one death per minute (Serruys P.W., Kutryk M.J., 2006; Moskvina Yu.V., 2012).

Of the many reasons for the development of NSD, connective tissue dysplasia (CTD) deserves special attention. A fairly large number of studies have been devoted to the problem of connective tissue dysplasia, but despite this at present, many unclear questions remain. The relevance of this pathology is due to at least three circumstances. Firstly, an increasingly increasing percentage of patients, which may be due to the accumulation in the population of signs of connective tissue dysplasia (CTD) transmitted in an autosomal dominant manner. Secondly, with the improvement of modern diagnostic capabilities. Thirdly, the presence of associated pathology from other organs and systems, and the risk of a number of complications, one of which is sudden death.

Comprehensive work devoted to the study of connective tissue dysplasia has led to the formation of the opinion that the pathology of the cardiovascular system in people with CTD is the most common, and cardiovascular disorders are the leading reasons for shortening the life of patients. The frequency of detection of rhythm disturbances in persons with CTD according to the literature ranges from 18-91%. Arrhythmic syndrome is included in the group of syndromes that determine thanatogenesis in persons with CTD, and can serve as a harbinger of sudden cardiac death in patients with CTD, and arrhythmias that are not life-threatening negatively affect the quality of life.

Considering the facts of sudden death in young patients with CTD and their high risk of developing fatal arrhythmias, a comprehensive assessment of changes in the cardiovascular system is necessary. This will make it possible to determine prognostic criteria for the course and early diagnosis of complications of cardiac arrhythmias in patients with signs of CTD, thereby affecting the quality of life and delaying the period of disability.

The aim of the study to study the clinical features of heart rhythm disturbances in young patients against the background of UCTD.

**MATERIALS AND METHODS.** In the city hospital of Samarkand, 30 patients with cardiac arrhythmias and CTD aged from 25 to 45 years were examined in the cardiology department.

General clinical examinations were carried out according to a standard scheme, including analysis of complaints, collection of anamneses, assessment of the subjective state of organs and systems. The comprehensive examination included ECG, Doppler EchoCG, Holter monitoring, Treadmill test.

The data obtained during the material analysis were collected and analyzed in a database developed using Microsoft Office software (Access 2010). Descriptive statistics methods included

arithmetic mean (M), mean error ( $\mu$ ) and mean squared deviation (s) of markers with normal distribution.

**RESULTS AND DISCUSSION.** In this study, we analyzed the data of 30 patients with cardiac arrhythmias and CTD. The average age of all patients who applied to the department for inpatient treatment was  $38.2 \pm 2.14$  years. Most of them were patients over the age of 30 years, while relatively fewer were patients aged 25 to 30 years. The mean length of hospital stay was  $4.6 \pm 1.8$  days. The main complaints upon admission to the hospital were associated with pain in the heart area, with an unpleasant feeling in this area, more than half complained of a feeling of palpitations, and 40% noted a feeling as if “the heart had stopped,” almost all patients complained of weakness, fatigue and irritability. 60% of patients had symptoms of non-circulatory dystonia. 20% of patients had previously received treatment for this issue.

In the general blood analysis, anemia of various degrees was found in 60%, but no significant changes were noted in other parameters. In 20% EHR increased to 20 mm/h. In general urinalysis, signs of inflammation were found in 26%.

When analyzing clinical characteristics, lower values of the Varge index ( $1.47 \pm 0.25$ ) and body mass index ( $19.15 \pm 4.47$ ) were revealed, which corresponded to a higher value of the diagnostic threshold for UCTD.

Indicators of 72-hour ECG monitoring showed that in patients with arrhythmic syndrome against the background of UCTD, predominantly supraventricular and ventricular extrasystole were observed. According to echocardiography, patients were characterized by a higher incidence of mitral valve prolapse (MVP), mitral regurgitation, as well as a tendency to decrease end-systolic and diastolic volumes.

Lower rates of global longitudinal systolic myocardial strain were detected in patients with arrhythmic syndrome against the background of UCTD:  $-22.96\%$  [ $-24.56\%$ ;  $-21.50\%$ ]. Noteworthy was the presence of a local decrease in the longitudinal deformation of the myocardium (in  $\geq 2$  segments) in 60% of patients. A comparative analysis of the systolic longitudinal strain revealed statistically significant differences in the basal anterior, basal inferolateral, median infero-septal and apical anteroseptal segments.

During the study, a direct, weakly dependent, statistically significant relationship was revealed in patients between paired supraventricular extrasystoles and a decrease in local longitudinal strain in the median lower segment, in the median anterolateral segment, in the apical anterolateral segment; between class I ventricular extrasystole and a decrease in longitudinal strain in the median anterior and apical anterior segments; between class V ventricular extrasystole and deterioration of deformation characteristics in the basal lower and middle anterior segments. In addition, there was a moderate correlation between MVP and a decrease in longitudinal systolic strain in the basal inferolateral and basal anterior segments.

**CONCLUSION.** In summary, the results of our study suggest that assessment of myocardial structure and function using advanced echocardiography techniques such as STE is more accurate in the evaluation of patients with UCTD and arrhythmia than traditional transthoracic echocardiography.

The relationship between paired supraventricular extrasystoles, ventricular extrasystole classes I and V, as well as MVP, identified in patients with the presence of deterioration of deformation characteristics in individual segments of the LV, may also indicate the presence of a

defect in the fibrous structures and the main substance of the connective tissue, leading to remodeling and electrical heterogeneity of the myocardium.

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