



Original Research Article

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**CLINICAL AND MORPHOLOGICAL SKIN LESIONS IN THE STRUCTURE OF
CONNECTIVE TISSUE DYSPLASIA**

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Relevance of the problem. Connective tissue dysplasia (CTD) is one of the most important medical and social problems of congenital pathology due to its progressive course, multiorgan involvement, and often unfavorable outcome. Data on the prevalence of CTD are contradictory: the detection rate of individual manifestations in the population varies from 8.5% to 85.4%, which is due to different classification and diagnostic approaches. Currently, differentiated and undifferentiated connective tissue dysplasia (UCTD) are distinguished. UCTD is diagnosed when a patient's set of phenotypic features does not fit the clinical picture of any known differentiated hereditary disease. The literature contains numerous publications on cardiovascular and musculoskeletal system damage in UCTD. According to the authors, skin pathology in UCTD reaches 18.0%. However, the description and frequency of manifestations of individual signs of skin pathology in different studies are contradictory, and their diagnostic significance has not been determined.

Few studies by dermatologists have been devoted to assessing the impact of the dysplastic process on the course of associated skin pathology. A direct correlation has been established between the severity of clinical manifestations of atopic dermatitis and the severity of CTD. Researchers point to the pathogenetic significance of a deficiency of copper, zinc, and magnesium ions in the development of the main clinical symptoms of CTD [82]. It has been established that a deficiency of these micro- and macroelements leads to increased degradation of collagen and elastin fibers, as well as hyaluronan polysaccharide threads, which ultimately leads to a decrease in the mechanical strength of connective tissue. However, the diagnostic significance of determining the level of

micro- and macroelements in patients with CTD, its relationship between external and internal signs, and minor developmental anomalies (MDAs) has not been sufficiently studied. Thus, the study of the signs and MARs of the skin in UCTD, the assessment of the frequency of occurrence and the determination of their diagnostic significance taking into account the principles of medical statistics, the development of a diagnostic algorithm taking into account modern regulatory documents, with the aim of providing highly qualified specialized dermatovenereological medical care that ensures the appropriate quality of preventive measures aimed at the early detection of UCTD using clinical and laboratory data, is relevant and is of scientific and practical interest.

The aim of the study was to develop and scientifically validate a diagnostic algorithm for undifferentiated connective tissue dysplasia based on the study of macromorphological skin lesions, external and internal signs of undifferentiated connective tissue dysplasia, and laboratory correlations of micro- and macronutrient levels.

Research objectives. To determine the macromorphological features of skin lesions in patients with undifferentiated connective tissue dysplasia and establish their significance. To establish the characteristics of the course of chronic dermatoses in patients with undifferentiated connective tissue dysplasia. To identify and study external and internal signs, minor developmental anomalies in patients with undifferentiated connective tissue dysplasia, and determine their correlation with skin pathology. To study clinical and laboratory correlations of micro- (Cu, Tn) and macroelements (Mg) in the blood and oral fluid of patients with undifferentiated connective tissue dysplasia. To develop an algorithm for diagnosing undifferentiated connective tissue dysplasia in young adults.

Study results . A comparative analysis of clinical signs in the UCTD patient and control groups provided additional and new data for characterizing the cutaneous manifestations of UCTD, specifically identifying such signs as "pathological scars" after cosmetic procedures involving skin damage, hirudotherapy, and intravenous infusions, and " multiple striae ." A high complication rate from the use of topical glucocorticosteroids in patients with chronic dermatoses and UCTD was established for the first time. A scale for skin lesion signs in UCTD was developed and scientifically validated. It was found that skin lesions in patients with UCTD occur in 52.8% of cases,

justifying the need for a dermatologist to participate in the diagnosis of this pathology. A diagnostic algorithm was developed, incorporating macromorphological and laboratory signs, which enables timely therapeutic, diagnostic, and preventive measures in patients with UCTD. It has been shown that targeted clinical examination of patients with UCTD in accordance with the proposed diagnostic algorithm, together with related specialists, allows for the diagnosis of internal signs of UCTD: mitral valve prolapse, tricuspid valve prolapse, abnormal chords of the left ventricle, nephroptosis, changes in the gallbladder, anomalies of the kidneys and the renal pelvis, and reflux disease. Undifferentiated connective tissue dysplasia in 44.4% of the examined patients has dermatological markers of the general pathological process of hereditary connective tissue disorders with certain clinical manifestations: thin "translucent" skin (40.0-44.4%), $p < 0.05$), thin scars (40.0-44.4%, $p < 0.05$), "tissue paper" scars (28.9-36.1%, $p < 0.05$), multiple striae (20.0-22.2%, $p > 0.05$).

Severe connective tissue dysplasia of the skin was detected in 10% of patients with undifferentiated connective tissue dysplasia with 5 or more anomalies (with the diagnostic threshold for diagnosing connective tissue dysplasia being the presence of 3 reference features). It was established that topical glucocorticosteroid therapy in patients with chronic dermatoses associated with undifferentiated connective tissue dysplasia was 4 times more likely to cause the development of striae and skin atrophy ($p < 0.05$). Undifferentiated connective tissue dysplasia was accompanied by low serum magnesium levels (less than 0.75 mmol/L) in 67.0% of patients ($p < 0.05$), which is of significant importance in the laboratory examination of such patients. It has been established that patients with external signs of hereditary connective tissue disorders are significantly more likely ($p = 0.001$) to be diagnosed with connective tissue pathology in internal organs, and the severity of undifferentiated connective tissue dysplasia increases proportionally to the number of identified phenes. The detection of more than three internal manifestations of dysplasia allows for a preliminary diagnosis of undifferentiated connective tissue dysplasia. An algorithm for diagnosing undifferentiated connective tissue dysplasia in young people has been developed and implemented into practice. It includes anamnestic data, clinical and laboratory examination, which made it possible to promptly diagnose internal phenes of undifferentiated connective tissue dysplasia, namely: mitral valve prolapse (30.6-44.4%), tricuspid valve prolapse (6.7%), nephroptosis (35.6-36.1%), anomalies of the

kidneys and the renal pelvis (22.2-24.4%), requiring treatment and preventive measures, interaction in the work of a dermatovenerologist with related specialists.

Conclusions: When During a physical examination of patients with dermatovenereological conditions, it is recommended to identify symptoms of undifferentiated connective tissue dysplasia using the phenotypic scale for cutaneous connective tissue dysplasia. If even isolated clinical signs of undifferentiated connective tissue dysplasia are detected, it is advisable to measure the patient's serum magnesium level. If three or more clinical symptoms or two clinical symptoms and hypomagnesemia are detected, the patient should be referred to related specialists for clarification of the diagnosis of undifferentiated connective tissue dysplasia, followed by treatment and preventive measures.

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