THE EFFECTIVENESS OF TREATMENT WITH VITAMINS AND TRACE ELEMENTS IN JUVENILE RHEUMATOID ARTHRITIS AGAINST A BACKGROUND OF UNDIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA.

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Introduction. Juvenile rheumatoid arthritis (JRA) or juvenile idiopathic arthritis (JIA) is a chronic inflammatory joint disease of unknown aetiology that develops in children under the age of 16 and persists for more than 6 weeks. JRA accounts for the largest proportion of the overall incidence of rheumatic diseases in children, owing to the high frequency of adverse outcomes and complications, and the tendency towards early disability. According to various studies, the prevalence of JIA ranges from 3.8 to 165.1 per 100,000 population per year. The first peak in the onset of JIA occurs between the ages of 1 and 3 years, and the next between 8 and 10 years. Girls are more commonly affected by JIA. Early diagnosis, the provision of timely and appropriate treatment, patients' adherence to the requirements of regular clinical follow-up, and the elimination or minimisation of triggering factors and the impact of risk factors make it possible to slow the progression of the disease, significantly reduce the severity of its course, improve the prognosis for survival and enhance quality of life.

Connective tissue dysplasia (CTD) is a genetically determined condition characterised by defects in the fibrous structures and ground substance of connective tissue. This condition is one of the most common disorders encountered by doctors in their practice. Hereditary or acquired changes in connective tissue can lead to the impairment of vital functions in various organs. Throughout a person's lifetime, particularly when exposed to adverse environmental factors and in the absence of correction of mineral deficiencies, the number and severity of dysplastic features increase progressively, resulting in certain changes to homeostasis.

Materials and methods. The study was conducted from 28 November 25 to 22 May 26 at the TashGosMU Multidisciplinary Children's Clinic and the 4th Children's Clinical Hospital, involving 57 paediatric patients with juvenile rheumatoid arthritis and signs of an undifferentiated form of connective tissue dysplasia. Of these, 35 were girls and 22 were boys aged between 4 and 17 years. The patients' diagnosis of JRA had been confirmed; they received inpatient treatment every six months and were under the care of a cardiologist-rheumatologist. Complaints included: joint pain, morning stiffness, fever

and restricted joint movement, particularly in the knees. In addition, there were reduced appetite, weight loss, pain in the right upper quadrant, short-sightedness, palpitations, constipation, irritability and frequent tonsillitis. Phenotypic features of the undifferentiated form of connective tissue dysplasia were assessed using L. Fomin's table, developed in 2000. Manifestations of undifferentiated connective tissue dysplasia (UCTD): musculoskeletal symptoms were identified in 52.3 per cent of cases; ectodermal symptoms in 22.8 per cent; visceral symptoms in 16.1 per cent; and muscular symptoms in 8.8 per cent. Comorbidities observed in the patients under our care: - anaemia; (91.3%) - chronic tonsillitis; (100%) - metabolic nephropathy (oxalaturia, uraturia, phosphaturia); (38.4%) - somatoform vegetative-vascular dystonia (43.7 per cent) - myopia (28.9 per cent) - bronchiectasis (in one patient) - arrhythmias (11.2 per cent) - gastrointestinal dyskinesia (23.7 per cent). Laboratory findings. Reduced haemoglobin levels (91.3%). Reduced serum levels of iron (94.7%), magnesium (98.4%), calcium (90.6%), phosphorus (78.3%) and zinc (58.5%). A slight decrease in copper and manganese levels (14.7%). Elevated levels of alkaline phosphatase (88.2%), parathyroid hormone (41.3%) and osteocalcin (23.7%). Elevated levels of glycosaminoglycans (73.4 per cent) and hydroxyproline (59.4 per cent) in urine. It is worth noting that these patients showed a significant increase in ESR (56.1 per cent) and CRP (88.7 per cent). Imaging studies: periarticular osteoporosis (stage 1) was recorded in almost half of the patients (78.8%). Narrowing of the joint space and isolated erosions (stage 2) were identified in 21.6% of patients; multiple erosions and subluxations in the joints (stage 3) were identified on X-rays in only 4.9% of children. Ultrasound examination: the most common finding identified during ultrasound examination of the joints in patients with juvenile arthritis was synovitis (95.1%), manifested by thickening of the synovial membrane.

Proliferation of the synovial villi, which is a pathognomonic symptom of chronic arthritis (85.2%). Ultrasound examinations of internal organs revealed: biliary tract dyskinesia, reactive changes in the liver, signs of metabolic nephropathy, and pyeloectasia.

Treatment plan. All patients received inpatient treatment in accordance with the standard protocol (antibiotic therapy, NSAIDs, and preparations containing sodium and potassium). Treatment was carried out to resolve chronic tonsillitis. Following discharge, patients continued treatment and took the cytostatic drug (methotrexate) for 3 months. Canefron and Chondroritz were recommended (for 1 month). A special diet rich in protein, essential amino acids, fats and carbohydrates was prescribed. Carbonated drinks, sugar, fast-acting carbohydrates and tea (during meals) were prohibited. Following the course of methotrexate, we began to address the deficiencies. To treat mineral deficiencies, we prescribed iron supplements (50 mg), magnesium glycinate (400 mg), selenium and zinc (in minimal doses). In addition, vitamin D (2,000–5,000 IU) and B vitamins were prescribed. To ensure the treatment was effective, we focused on liver and bowel function. We addressed the cause of the constipation and prescribed natural cholagogue preparations.

Results and discussion. The patients' condition and general well-being improved. Joint pain and swelling disappeared. The patients noticed an improvement in joint mobility. During this period, they were not troubled by chronic tonsillitis. An increase in haemoglobin levels was observed. The patients' appetite returned to normal and they began to gain weight. There were no cardiac complaints, and the heart rhythm returned to normal. A reduction in the patients' irritability was noted. Gastrointestinal function (liver, gallbladder and intestines) returned to normal. Ultrasound scans of the internal organs showed normal findings. Ultrasound and X-ray examinations of the joints revealed moderate osteoporosis and synovitis.

Conclusions. When diagnosing juvenile rheumatoid arthritis, the presence of connective tissue dysplasia must be taken into account. The treatment plan should include strengthening the connective tissue and replenishing vitamin and mineral deficiencies. Attention must be paid to liver condition and gastrointestinal function. If problems are present, the underlying cause must be addressed. Treatment should include dietary management. Medications should be prescribed at the lowest possible doses. It is not recommended to take vitamins and minerals whilst undergoing cytostatic therapy.