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CLINICAL AND LABORATORY INDICATORS IN CHILDREN WITH URILOSTICAL DISEASE

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КЛИНИКО- ЛАБОРАТОРНЫЕ ПОКАЗАТЕЛИ У ДЕТЕЙ С МОЧЕКАМЕННОЙ БОЛЕЗНЬЮ

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Abstract:
A study was conducted of changes in biochemical parameters in urolithiasis with different types of stone localization and clinical picture. All patients underwent an outpatient examination: a general clinical examination, including a general urine test; biochemical; hematological. The article presents the results of studies of inpatients diagnosed with urolithiasis. These studies are relevant due to the need for constant monitoring of prescribed laboratory tests by clinicians when managing these patients. This allows you to increase the level of competence of specialists in the field of laboratory services and for urologists, improves the rationality of prescribing laboratory tests for various nosologies and work with “Standards of diagnosis and treatment”. It turned out that laboratory test orders for urolithiasis do not always correspond to the standard of medical care.

Keywords: laboratory tests, urolithiasis, quality of laboratory tests, standard of care, biochemical study, immunological study, hematological study.

Urolithiasis (UCD) is one of the most common urological diseases and occurs in at least 31% of the population. ICD occupies one of the first places in the structure of urological diseases, amounting to an average of 34.2% in Russia [1]. Patients with urolithiasis make up 30–40% of the total population of urological hospitals. Due to its widespread prevalence, peculiarities of development and course, urolithiasis remains one of the pressing problems of medicine, especially since in recent decades there has been a tendency to increase the frequency of this disease, associated with the growing influence of a number of unfavorable environmental factors on the human body [2]. However, experts agree on one thing: disease

prevention based on regular clinical and biochemical studies of the patient's blood is quite effective [3]. A clinical (general) urine test shows urine pH, the presence of bacteria, blood, and the number of leukocytes. Those. the analysis shows in which direction the disturbance of water-salt metabolism occurred: acidic or alkaline, which means the doctor can guess the type of stones. If bacteria are found, leukocytes mean there is an accompanying inflammatory process. If there is blood in the urine, most likely the stone has begun to move and damaged the mucous membranes of the urinary tract. Both morning and 24-hour urine tests may be required. The procedure involves identifying salt crystals in the urine, which serve as the basis for the formation of kidney stones. The concentration of uric acid crystals is monitored.

Depending on the type of metabolic disorder or the presence of infection, urinary stones can have a different chemical composition: some of them have a monostructural structure, but polymineral, or mixed structure, stones are more common. Knowledge of the structure of the stone plays an important role when choosing methods of treatment and prevention. The polyetiological nature of the disease and lack of knowledge of the role of numerous pathogenetic mechanisms of stone formation complicate both the informed choice of treatment tactics and measures of primary and secondary prevention for each patient. Therefore, the question is how best to treat patients with urolithiasis.

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In addition to the high incidence, the urgency of the problem lies in the fact that the disease has a long, often relapsing course. According to statistics, on average, each patient with urolithiasis undergoes hospital treatment 2 times during the year. It was revealed that patients with urolithiasis who were observed by urologists and received appropriate anti-relapse treatment, the frequency of disease relapses was 3 times lower than in patients who did not receive similar therapy. Among the causes of disability due to urological diseases, urolithiasis ranks third after malignant neoplasms and pyelonephritis, which is associated with a progressive deterioration of the anatomical and functional state of the kidneys and urinary tract, ending in chronic renal failure.

Materials and methods. The appeal rate was studied (primary and general indicators were calculated) at the Multidisciplinary Clinic of SamMU. with urolithiasis, for 2022-2023 in the Samarkand region. An analysis was made of the quality of laboratory care provided to inpatient patients with urolithiasis (UCD). The material for the study was information obtained by copying information from the registration journal from the clinical laboratory diagnostics department of the SamMU Multidisciplinary Clinic. Subjected to analysis from the registration log of laboratory tests of patients. The following materials were taken from the journals: socio-demographic (gender, age, social status), diagnosis of the referring institution and clinical diagnosis, laboratory test results.

All patients underwent a general clinical examination, including a general urinalysis (UCA); biochemical (urea, blood creatinine); hematological (complete blood count (CBC), leukocyte intoxication index (LII), Harkavi index); determination of hemostasis; coagulogram analysis (PTT, PTI, APTT, recalcification).

A laboratory and clinical algorithm for examining patients with urolithiasis is proposed for early diagnosis and for monitoring inpatient patients to diagnose the disease. A comprehensive examination (biochemical, hematological, general clinical, coagulogram) was carried out on the basis of the Department of Clinical Laboratory Diagnostics and with the course of clinical and laboratory diagnostics of the FPDO Multidisciplinary Clinic SamMU.

The study included 79 children from 1 month to 14 years (Table 1). Control group – 30 practically healthy individuals.

As can be seen from table. 1, the disease is equally common in both boys and girls. The distribution of patients by age and gender showed that urolithiasis is most common in boys under four years of age 25 (33%), in girls it was 13 (17%). This is due to the structural features of the genital organs in young boys.

Distribution of patients with urolithiasis by age and gender

	Age, years				
	0-1	1-3	3-7	7-10	10-14
Boys (n=47)	11	14	13	4	5
Girls (n=32)	4	9	6	5	8
Total	15	23	19	9	13

An analysis of the quality of laboratory services in accordance with the standard of medical care and compliance with the requirements of the “Standards of Diagnostics and Treatment” was carried out using the example of patients with urolithiasis (UCD) and the course of which was complicated by chronic pyelonephritis (CP). The standard of medical care (SMC) for patients with urolithiasis (ICD-10 code: N20) when providing specialized medical care was approved by the Ministry of Health of the Republic of Uzbekistan.

The volume of observation was 79 analyses. Based on the information received, the compliance of the frequency and frequency of laboratory services provided with the standard of medical care for patients with urolithiasis was determined. Diagnosis was encoded using the full list and the four-digit ICD code of the tenth revision.

Research results In 90.0% of cases, patients were admitted to the ICD as planned, on a referral from a consultative clinic. The distribution of patients by age showed that 29.0% were in the age group of 1-3 years. This data indicates that up to one year and in the next age group there is a predisposition to ICD.

19.0% - up to 1 year; 24% - at 3-7 years; 12% - at 7-10 years old, 16% - at 7-14 years old;. There were more boys (55.0%) than girls (45.0%). This is due to anatomical features in the male sex.

Taking into account the type of change, all patients were divided into 3 groups depending on the degree of increase in changes in laboratory parameters (Table 2). The 1st group included 9 patients with different stone localizations. A full clinical and laboratory examination revealed that the erythrocyte sedimentation rate (ESR) in the KLA was increased in all patients, while the number of leukocytes increased, the number of erythrocytes and hemoglobin in the peripheral blood decreased, the color index was below normal and LII exceeded normal, the Harkavi index was within norms.

When studying the biochemical parameters of the patients' serum, it was found that creatinine and urea were increased. Enzymes ALT and AST are slightly elevated. Electrolyte balance indicators: sodium exceeds the norm, potassium and chlorine are within normal limits; Total protein and calcium are below normal (hypocalcemia unrelated to KSD).

OAM: protein was detected in the urine, microscopy of the urinary sediment revealed leukocytes (WBC) – contiguous in the field of view (FOV) and erythrocytes (RBC) – contiguous in the FOV, in some patients bacteria from (+) to (++) were found) and mucus from (++) to (+++) under microscopy. The above listed changes are evidenced by the pain of those in this group; they either began with chronic renal failure or acquired a secondary infection. When studying the clinical and biochemical parameters of the 2nd group, which included 55 patients, the results of laboratory tests were up to 3-5 times higher than normal, hematological parameters: Reduced number of red blood cells, hemoglobin in the peripheral blood, color index below normal

and LII ESR exceeds the norm within or above the norm, leukocytes in the peripheral blood are moderately elevated. biochemical determinations: urea and creatinine - above normal. ; OAM: the presence of protein in the urine remains, microscopy of the urinary sediment shows an increased number of leukocytes and erythrocytes (the main proportion of erythrocytes are unchanged forms), in some patients mucus (+) is found on microscopy. When studying the biochemical parameters of patients' serum, it was found that creatinine and urea were higher than normal. Enzymes ALT and AST are slightly elevated. Hypoproteinemia was detected in blood serum. Electrolyte balance: calcium and potassium – below or within normal limits; sodium – within or above normal; phosphorus and chlorine are above normal.

Group 3 (11 patients). Hematological indicators: ESR and leukocyte count are within normal limits. Hemoglobin, erythrocytes, platelets are at reference levels. LII is above the norm, the Harkavi index is slightly lower and within the normal range. Biochemical blood parameters: urea, creatinine - within normal limits, TAM: traces of protein; During microscopy, leukocytes from 5 to 10 were observed in the p/z, red blood cells were absent. Electrolyte balance: all studied electrolytes were within normal limits. Coagulogram analysis showed no changes in all parameters. The analysis showed that the volume of laboratory tests guaranteed by the standards of medical care was provided to patients with urolithiasis in most cases (>95.0%) fully in accordance with the requirements of the emergency medical service. General blood and urine tests were prescribed to all patients (100%), regardless of the form of ICD, in almost the same volume. Urine analysis (Zimnitz test) was performed in 72.5% of patients. The least number of patients had urine volume determined using the Addis-Kokovsky method (14%) and no urinary stone analysis was performed at all (0%). A study of the level of total protein, creatinine, urea, and glucose in the blood was carried out in 100% of patients. The levels of sodium and potassium in the blood were studied in 55.0% of patients with urolithiasis. Biochemical urine analysis (protein, billuribin) was provided to 100% of those examined. The frequency and efficiency of providing laboratory tests to patients with urolithiasis and the compliance with emergency medical care were analyzed. All patients underwent a general analysis of urine and blood promptly - on the first day after admission to the hospital. The frequency of providing a general blood test varied from 1 time (on average 2.92 ± 0.04), a general urinalysis from 1 to 3 times (3.23 ± 0.07), a biochemical blood test from 1 to 2 (1.03 ± ± 0.07), biochemical urine analysis 1 time or less (0.07 ± 0.00). The study showed that 90.0% of patients underwent laboratory tests included in the list of standard of care, which is considered selective analysis: of which, in most cases: study of total bilirubin and its fractions (92%), study of aminotransferases (92%), which was probably due to the nature of complications of the underlying disease, concomitant diseases and some features of monitoring the therapy.

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