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RELATIONSHIP OF OXALATE NEPHROPATHY AND DIGESTIVE PATHOLOGY IN CHILDREN

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ABSTRACT

Study of the structure, combined pathology of the kidneys and the digestive system of non-microbial etiology are researched in this article. A survey of 120 children with oxalate nephropathy was conducted. The age of children from 3 to 14 years are examined. All children underwent general clinical studies, biochemical analysis of blood and urine, EFGDS, ultrasound of the abdominal organs and kidneys, a study of feces for dysbiosis. When oxalate nephropathy revealed a high frequency of combination of pathology of the gastrointestinal tract. The most common athologies of the digestive tract, which was detected in children with oxalate nephropathy, are: chronic gastritis (32%), biliary tract dysfunction (56%), duodenal ulcer (3%), and chronic enterocolitis (9%). Impaired bowel function, in the form of dysbiosis, was detected in 65.3% of children with oxalate nephropathy.

Keywords: children, metabolic (dysmetabolic) nephropathy, hyperoxaluria, digestive organs.

INTRODUCTION

In recent years, there has been an increase in metabolic diseases, including among the child population. Among them, metabolic nephropathy is becoming more common [1]. In the structure of the incidence of the urinary system in children, it accounts for from 27 to 64% [3]. Dysmetabolic nephropathy is a group of diseases with various etiologies and pathogenesis, characterized by an interstitial process with damage to the renal tubules due to metabolic disorders [4].

Recent works devoted to the problem of combined pathology of the organs of the urinary and digestive systems indicate the role of disorders of the gastrointestinal tract in the development of kidney diseases. Thus, metabolic disorders of the metabolism of oxalic, uric acids, calcium, arising from the pathology of the digestive system, are one of the leading factors predisposing to the development of tubulo-inflammatory inflammation. The presence of a relationship between the digestive and urinary organs in the regulation of all types of metabolism requires consideration of their pathology in a single context, since a dysfunction of one system contributes to a change in another. This is due to the fact that the interorgan structural-functional connections between the kidneys and the digestive system in children are more

pronounced than in adults, due to limited reserve capabilities, which is especially pronounced in pathological conditions[2].

Exogenous and endogenous predisposing factors are distinguished [4]. Exogenous factors include: climatic (dry and hot climate), features of the composition of drinking water (high hardness), the content of micro and macro elements in the environment (lack of magnesium, iodine, excess calcium, strontium), features of the food regime (deficiency of vitamins A, B6, PP, hypervitaminosis D, excessive consumption of protein-rich foods , purines, oxalic acid, inadequate intake of foods containing unsaturated fatty acids), inadequate drinking regimen. Hyperoxaluria can develop with excessive intake of oxalic acid with food, excessive absorption in the intestines (for example, with short bowel syndrome) or due to congenital metabolic disorders [4].

Recently, a great deal of attention has been given to the intestinal microbiota in the genesis of dysmetabolic nephropathy with oxalate-calcium crystalluria. Oxalates trapped in the intestinal lumen can be destroyed by the action of certain microorganisms, primarily Oxalobacter formigenes [6,7]. A significant role in the genesis of intestinal hyperoxaluria is played by dysbacteriosis of the intestine, as a result of which the number of bacteria colonies Oxalobacter formigenes, which break down about 50% of exogenous oxalate, is reduced. The absence or reduction of Oxalobacter formigenes in the intestine increases the availability of oxalate for absorption and increases its concentration in the blood and urine [5].

Given the above, the goal of our study was to study the structure of the combined pathology of the kidneys and digestive organs of non-microbial ethnology.

MATERIALS AND METHODS

We examined 120 children with oxalate nephropathy aged 3 to 14 years living in the Kharezm region. All children underwent general clinical examinations, biochemical studies of blood and urine. To assess the condition of the gastrointestinal mucosa, EFGDS, ultrasound of parenchymal organs, and feces for dysbiosis were performed.

The criteria for including patients in the study were the repeated detection of calcium oxalate-crystalluria in urine tests, its combination with abacterial leukocyturia, microhematuria.

RESULTS AND DISCUSSION

At the first stages of our work, we analyzed the anamnesis, clinical and paraclinical data and the structure of diseases of the digestive system and urinary system in children according to reversibility data. An analysis of the biomedical history revealed that in 81% of cases there was a pathological pregnancy, in 52% of the subjects there was a perinatal lesion of the central nervous system. According to the genealogical history, 85% of the examined children showed burdened heredity in the pathology of the urinary system and gastroenterological pathology (50%). Artificial feeding was observed in 49% of children with pathology of the urinary system and digestive organs. Family history was burdened by urolithiasis in 21% of children, by cholelithiasis - by 19%, and by peptic ulcer - by 23%.

Studying the data of accounting form 112 revealed that in the structure of the pathology of the digestive organs in children, functional disorders of the gastrointestinal tract (56%) prevail over

organic ones, especially in young children (69%). The features of the structure of diseases of the gastrointestinal tract depending on the form of kidney pathology were revealed: in 91% of children with dysmetabolic nephropathy, the digestive organs showed pathology of them: chronic gastritis - in 32%; biliary tract dysfunction - in 56%; peptic ulcer - 3%, chronic enterocolitis -9%.

An analysis of the clinical picture in the group of children with kidney diseases suggests that, with a concomitant pathology of the digestive system in these patients, a dyspeptic syndrome in the form of nausea was noted in the clinic; in 28% of patients, abdominal pain was observed; 18% had no clinical manifestations.

The leading clinical syndromes that we identified after a clinical examination of children were: abdominal pain syndrome (84.3%), dyspeptic disorders syndrome in 85.6% of cases, and asthenovegetative disorders syndrome (60.0%). None of the clinical syndromes were encountered in isolation. The combination of three syndromes was detected in 61.7% of children, and the presence of two - in 38.3% of patients.

Examination of children with oxalate nephropathy for dysbiosis revealed that dysbiotic changes of various severity were found in 65.3%: dysbiosis of the I – II degree in 102 (85%), dysbiosis of the III degree in 18 patients (15%). It should be noted that the majority of 60% of patients before the examination did not pay attention to the state of intestinal function. However, when conducting a focused survey, characteristic clinical manifestations of dysbiosis were revealed: flatulence, discomfort or minor abdominal pain, moderate stool disorders, mainly in the form of diarrhea.

Inhibition of growth of facultative anaerobes was observed in all patients with revealed dysbiosis: bifidobacteria were found in the sixth, and lactobacilli in the fifth dilution (105 CFU/g). The total number of Escherichia coli corresponded to the norm in only 38 patients (31.6%), was moderately increased (up to 6.2 • 108 CFU / g) in 42 (35%), and in the remaining 40 patients it was reduced (33.3%). The decrease in the level of normal Escherichia coli, as a rule, was moderate - up to 1.3–2.8 • 108 CFU / g, in some cases - up to 107 CFU / g (11 patients). With III degree dysbiosis, along with quantitative and qualitative changes in normoflora, an overgrowth of opportunistic microorganisms was noted: more often hemolytic Escherichia coli, less often Candida fungi.

CONCLUSION

In children with oxalate nephropathy, digestive system disorders such as chronic gastritis (32%), biliary tract dysfunction (56%), duodenal ulcer (3%), chronic enterocolitis (9%) predominate.

Dysfunction of the intestine, in the form of dysbiosis, was detected in 65.3% of children with oxalate nephropathy. The most often diagnosed is dysbiosis of the I – II degree (85%).

The leading clinical syndromes are: pain abdominal syndrome (84.3%), dyspeptic disorders syndrome (85.6%) and asthenovegetative disorders syndrome (60.0%). A combination of three syndromes occurred in 61.7% of children.

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