

## A STUDY OF IMPROVEMENT OF PREVENTION OF KIDNEY DISEASE IN CHILDREN OF PRESCHOOL AND SCHOOL AGE

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### ABSTRACT

*In the complex treatment of acute and chronic kidney diseases in children, diet therapy plays an important role. High requirements are imposed on therapeutic nutrition, since the kidney is the main organ for the excretion of metabolic products that come with food and are formed as a result of the breakdown of body tissues, as well as the organ responsible for maintaining the constancy of the internal environment. Under certain conditions, it becomes necessary to correct in the diet of nutrients such as animal protein, gluten, oxalates, urates, phosphates, the metabolic products of which are excreted through the kidneys and affect not only the pathogenetic mechanisms of the development of the disease, but also participate in the formation of non-immune processes of progression disease to the stage of renal failure.*

**KEYWORDS:** *Children, Dysmetabolic Nephropathy, Crystalluria, Oxalaturia.*

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### INTRODUCTION

Diseases of the urinary system are becoming one of the most pressing problems among children worldwide. According to the World Health Organization, kidney disease complications are important to the public health system in all countries, depending on the living space, lifestyle, gender, age, nutritional status of the population, the risk to life of children and adults in environmental conditions. factors. According to the authors, "... in areas contaminated with industrial or agricultural toxicants, dysmetabolic nephropathy occurs in one in three children and increases with age ... Despite advances in the treatment of dysmetabolic nephropathy (DND) in children, it is becoming one of the most pressing problems of applied medicine. Particular attention is paid to a number of targeted research studies aimed at improving the clinical and pathogenetic characteristics, diagnosis and treatment of the disease in children and adolescents around the world, especially in children and adolescents living in environmentally disadvantaged areas. In this regard, the relationship between changes in renal function in children, the level of

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salts in the urine in the development of complications of dysmetabolic nephropathy, the correlation of clinical and laboratory parameters in the formation and course of oxalate nephropathy, renal function, hemodynamics. [1-5]

### **Objective of the study**

To work out propositions and recommendations concerning dysmetabolic nephropathy prophylaxis in preschool and school-age children in Khorezm region.

### **Materials and methods of the study**

In our study 120 children aged 3 to 15 years old diagnosed with dysmetabolic nephropathy were taken to Khorezm Regional Children's Multidisciplinary Medical Center and family polyclinics. Of these, 72 (60%) were girls and 48 (40%) were boys.

There were 72 children in the Uralesan + diet group. Age-appropriate quantitative treatment course was conducted during one month. Preschool children received 2-4 ml of Uralesan 3 times a day, and school-age children received specially recommended diet: 5 ml of Uralesan + 3 times a day for children.

2-nd group - the group of children receiving "Uralesan" syrup - 48 children at the age of 3 to 15 years old are recommended a month course of treatment depending on their age: preschool children - 2-4 ml 3 times a day; schoolchildren - 5 ml 3 times a day.

Questionnaires, retrospective data, assessment of the clinical picture, biochemical, instrumental, functional and statistical methods of analysis were used in the study.

Practical results of the study. To fulfill our objectives we conducted the study in 3 phases:

Phase 1. Retrospective determination of the use and effectiveness of therapeutic and preventive measures in children receiving inpatient treatment with DMN and other kidney diseases, child developmental history (form 112), medical history of the somatic department (form 003).

Phase 2. Taking into account the latent nature of the disease clinic in the early stages of DMN, the almost complete absence of complaints in patients and the appearance of salt crystals in the urine, general clinical examinations were performed among healthy children, i.e. 120 children aged 3 to 15 years who did not complain of kidney disease.

Step 3. In order to correct and prevent oxalate nephropathy treatment in Khorezm region with regard to actual diet and drinking water clinical study was conducted in 120 children. The children were divided into 2 groups to determine the use and efficacy of Uralesan in combination with diet.

Practical results of the study. In the first phase of our study, according to statistics from 2012 to 2019 in Khorezm region, the incidence of urinary tract disease in children increased from 23.7% in 2012 to 46.1% in 2019. A retrospective review of the case histories of 2976 children aged 3-15 years who were treated in pediatric-only units from 2011-2018 showed that 74%, had oxalate salts in their urine.

According to the comparative analysis of the municipal analysis of WDSNM of Khorezm region in 2016-2019, the content of trace elements in drinking water did not meet the requirements of the state standard. As a result, metabolic disorders and the formation of

dysmetabolic nephropathy in children were revealed, which was confirmed on the basis of clinical and laboratory parameters, such as glomerular filtration rate, urea, creatinine.

The frequency of persistent crystalluria and microhematuria was 27,7% in preschool children of the main group. In the main group during the school period, more than half of the respondents showed minor proteinuria, as well as intermittent pain in the morning eyelids, lower back, and lower abdomen. Despite the early onset of metabolic disease, the risk of STK (7%) was observed in children older than 10 years. Enuresis was present in almost 4,5% of preschool children, but not in school-age children. Stunting of physical development was almost identical in school-age children (11,4%) and preschool-age children (11,1%).

Glomerular filtration rate is the most accurate indicator allowing to estimate the functional state of kidneys in the form of one exact number. Our next study was to determine CFT in children with oxalate nephropathy, the most common (45,6%) in our main group, against the background of impaired phosphorus-calcium metabolism in renal function. The results of the study showed a significant increase in serum creatinine and urea with a significant decrease in GFR (76,24).

Recommended diet "Uralesan +" renal GFR increased by 50% in children of our group 1, while in children of group 2 this index did not exceed 7%. This testifies to the fact that CFR in group 1 children was 2 times higher than in the previous case.

Group 2 In the group of children who received only Uralesan syrup the daily amount of oxalates in the urine was significantly different from the conditions before and after treatment (first  $1751,0 \pm 88,6 \mu\text{mol} / \text{day}$ , then  $964,9 \pm 52,8 \mu\text{mol} / \text{day}$ ). Oxalate content in the urine of these children was reduced almost 2-fold. This is mainly due to the fact that the drug Uralesan has the property of increasing the excretion of urea and chlorides, helping to dislodge small stones and sand from the bladder and kidneys. However, on the 30th day of treatment, oxalate crystalluria was observed in 12% of the children in this group; the same condition was detected again at the examination three months after the beginning of the therapy. After administration of the drug Uralesan diuresis slightly increased (previously  $796,3 \pm 83,6 \text{ ml/day}$ , then  $1126 \pm 60,5 \text{ ml/day}$ ). At the same time, we were convinced that the drug Uralesan increases diuresis.

In group 1 - Uralesan diet + recommended for children - the amount of oxalates in the urine decreased 3 times (first  $1757,0 \pm 88,9 \mu\text{mol} / \text{day}$ , then  $665,78 \pm 49,3 \mu\text{mol} / \text{day}$ ). Here it should be noted that the Uralesan + diet, together with the elimination of the food factor in the body immediately prevents the formation of oxalates, forming a protective colloid in the urine. In this group of children before treatment, daily diuresis was also less pronounced. After the combined administration of the diet Uralesan + diuresis increased and reached the daily norm (at first  $828,6 \pm 84,2 \text{ ml/day}$ . Then  $1222,2 \pm 96,8 \text{ ml/day}$ . And here we were convinced that Uralesan increases diuresis.

## CONCLUSIONS

Thus, the results of the investigation show that oxalate nephropathy in schoolchildren and preschool children of Khorezm region appeared to be highly effective both in the rehabilitation period of the 1st group and in children taken together with the diet Uralesan. The combined use of the drug with the diet promotes the normalization of metabolic processes, strengthens the cytomembranes, has an anti-inflammatory effect on the renal parenchyma and improves capillary blood flow. This complex can be recommended for the complex therapy of children with oxalate

nephropathy. However, the criteria of dysmetabolic nephropathy risk group in children and an algorithm for early diagnosis have been developed and recommended for practice. [6-10]

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