

## CHANGE OF BIOCHEMICAL INDICATORS IN THE NEPHROTIC FORM OF CHRONIC GLOMERULONEPHRITIS IN CHILDREN AND THEIR RECOVERY

<https://doi.org/10.5281/zenodo.10184602>

**K.Z. Yaxyayeva**

*Tashkent Medical Academy, Uzbekistan*

Nephropathies are common in pediatric practice and make up 5-7% of common diseases. Chronic glomerulonephritis (CG) is one of the diseases specific to the Central Asian region, and in most cases, it is one of the causes of end-stage renal failure, along with congenital and acquired nephropathies [3,7,8]. According to the data of M.S. Ignatova (2003-2010), 50% of patients with glomerulonephritis have nephrotic syndrome (NS) [1,5]. The experimental and clinical studies of the following years made it possible to analyze the pathogenesis of SG more deeply, that is, as a result of this disease, it was shown that pathological changes develop in many tissues and organs. According to some authors, liver dysfunction leads to changes in metabolism [5]. It should be said that SG, especially its nephrotic form, is accompanied by lipid metabolism disorders. They are mainly characterized by hypercholesterolemia, hypertriglyceridemia, and this occurs due to a violation of lipoprotein metabolism in the liver [2,4,9].

Symptoms characteristic of the nephrotic form of SG are swelling and hypercoagulation. Therefore, the use of hypotensive drugs and anticoagulants in treatment procedures leads to positive dynamics in patients. A special feature of homeostasis in children is that the drugs used sometimes cause complications. Therefore, the development and improvement of new treatment procedures is considered one of the urgent problems of pediatric nephrology [1,6].

100 mg grofilin tablet created by local pharmacists has hypotensive and antiaggregant properties. Its basis is pentoxifylline. The clinical approval of this drug was carried out in adults and a recommendation was given that it can be used. However, the effect of this substance on children's body, especially on lipid metabolism, has not been studied yet.

SG was to study the parameters of fat metabolism in children with nephrotic form and to restore the observed changes with the drug grofilin. Talks were held at the Children's Nephrology Department of the Tashkent Medical Academy. 47 children aged between 3-15 years of age, with the stress stage of SG nephrotic form,

with preserved kidney function, were observed. 32 of them are boys and 15 are girls. The average duration of the disease was 3,5 years. Clinical-instrumental methods and biochemical analyzes were used to make a diagnosis of the nephrotic form of SG. All sick children were admitted to the hospital during the onset of the disease and divided into 2 groups based on the means of treatment. 25 children in 1 group were treated with traditional medicine. Antibacterial, detoxification, antiaggregant, anticoagulant, hypotensive, diuretic and hormonal treatment was carried out. 22 children in the II group were prescribed grofilin tablets along with hypotensive and antiaggregant drugs in addition to traditional treatment. Children aged 6-10 were given 30 mg per day, and children aged 10-15 were given 50 mg per day for 10 days.

Indicators of lipid metabolism: changes in total cholesterol, triglycerides, high, low and ultra-low cholesterol density were examined, in which blood serum was taken at lunch. Atherogenic coefficient was calculated. Examinations were carried out before the start of treatment and after the end of the course of treatment, the obtained numbers were statistically processed.

Indicators	Control group (n=30)	Patients with chronic glomerulonephritis nephrotic form	
		Renal function preserved (n=103)	Renal function failed (n=26)
Total cholesterol, mg/dl	177,6±8,1	308,93±4,74***	340,00±17,60***
Triglyceride, mg/dl	120,9±9,4	267,63±3,53***	296,69±13,23***
High density lipoproteins, mg/dl	43,5±1,5	54,72±1,37***	54,00±1,68***
Very high density lipoproteins, mg/dl	24,8±1,9	53,52±0,71***	59,33±2,65***
Low density lipoproteins, mg/dl	98,7±5,6	200,69±4,47***	226,67±15,50***
Atherogenic coefficient	2,6±0,16	4,64±0,19***	5,53±0,44***

Note: \* - differences are significant compared to the control group (\*\*\*) - P<0.001).

In the nephrotic form of SG, edema - 96.2%, oliguria - 78.72%, abdominal pain - 35.17%, weakness - 68.09%, anemia - 38.30% were observed. An increase in the amount of urea in the blood and hypercreatininemia are observed. A/G increase was observed in 25.32% of patients, tachycardia in 40.42%, and hepatomegaly in 57.45%. The obtained results showed that in most patients, changes in the size of

the liver and disturbances in the metabolism of fats in the liver, especially lipoprotein metabolism. All patients were found to have reliably changed indicators of fat metabolism. In particular, the amount of total cholesterol and triglycerides increased by 177.1% and 361.9% from the normal values. These indicators depended on the severity of the disease and changes in the liver. It should be said that cholesterol metabolism is the most important indicator of lipid metabolism. Certain fractions of lipoproteins are synthesized in the liver, blood and intestines. In particular, chylomicrons are mainly synthesized in the intestine to transport exogenous triglycerides. Very low density and high density lipoproteins are synthesized in the liver. Therefore, in clinical biochemistry and cardiology clinics, the amount of cholesterol in transport lipoproteins is studied, not the amount of total cholesterol.

In this regard, research shows that the amount of cholesterol in very low-density lipoproteins was  $20.69 \pm 2.96$  mg/dl, and its amount increased by 62.8% in sick children, while low-density lipoproteins was only 71.6%. This indicates a sharp increase in the saturation level of lipoproteins with cholesterol, especially the increase in low-density and very low-density lipoproteins can lead to a decrease in metabolism in the liver, that is, to accumulation in the endothelium. In fact, when the atherogenic coefficient was calculated, this indicator was 61.9% higher than the norm, and it led to cholesterol sequestration in blood vessels, formation of atherogenic plaques, thickening of the endothelium, and narrowing of the internal diameter of blood vessels. can come This is one of the factors that cause hypertension. When the nephrotic form of SG is treated with the traditional method, 65.6% of patients develop remission, 15-18% of patients have a decrease in swelling by the 5-6th day, an increase in diuresis, leukocytosis, proteinuria, cylinduria, and a decrease in ECHT were observed on the 8-9th day of treatment. In 60-72% of patients, a positive change was observed on the 10-12th day of treatment. It was observed that the indicators of fat metabolism changed in a positive direction after the treatment. In particular, the amount of total cholesterol and triglycerides decreased by 2.07 and 2.32 times, the amount of cholesterol in lipoproteins tended to decrease when the density was higher, and it was 2.34 and 3.66 times when the density was low and very low. The indicator has reliably decreased by 1.25 times, but the indicators have remained above the norm. This indicates a deep disturbance of cholesterol metabolism in children's body. In our opinion, it is necessary to recommend the use of hypolipidemic drugs to eliminate such changes. Addition of grofilin to patients in group II led to relatively rapid regression of clinical symptoms. In particular, in 32% of patients, on the 5-6th day

of the disease, swelling disappeared, diuresis normalized, fatigue decreased, arterial pressure normalized, blood leukocytosis, erythrocyte sedimentation rate, creatinine, urea normalized.

Positive changes were also observed in lipid metabolism. In this case, the amount of total cholesterol decreased by 2.45 and 1.18 times compared to the values before treatment, and the amount of triglycerides decreased by 3.08 and 1.33 times, but complete normalization was not observed. In high, low and very low density lipoproteins, the reduction of cholesterol is 1.37 compared to the norm; It was 4.24 and 2.54 times. It should be noted that if cholesterol was normalized in low-density lipoproteins and very low-density lipoproteins, it remained 70.1% higher in high-density lipoproteins. In our opinion, this may be due to the physico-chemical properties of grophilin, that is, this drug has a microcirculation-regulating effect due to the inhibition of phosphodiesterase activity and the accumulation of sAMF in vascular smooth muscles, blood-shaped elements and other tissues. . Based on the received information, we made the following conclusions:

1. Chronic Glomerulonephritis Nephrotic type in children is characterized by sharp changes in lipid metabolism, especially cholesterol metabolism, and the degree of these changes depends on the severity of the disease and the involvement of the liver in the pathological process.

2. Conventional treatment of Nephrotic glomerulonephritis in children results in a partial recovery of fat metabolism, but despite this, not only the total amount of cholesterol, but also its transport forms are maintained above the norm.

3. As a result of the inclusion of grofilin in traditional medical procedures, not only the symptoms of the disease improved, but also the cholesterol metabolism was normalized.

#### LITERATURE:

1. Ignatova, M.S. Glomerulopathy in children / M.S. Ignatova // Pediatrics. - 2011. - T. 90, No. 3. - P. 125-127

2. Kolman J., Rem K.G. Grofilin. Means for the treatment of disorders peripheral circulation. - M.: Mir. 2000. pp. 164-175.

3. Makarets B.G., Malakhovsky Yu.E., Rykov V.A., Iogina O.A., Danziger D.G., Phalomswa S.O. Sclerotic changes in the early stages of glomerulonephritis in children. // Pediatrics. - 2000. - P. 9-12.

4. Mukhin N.A., Monsesv V.S., Kobalova Zh.D., Fomin V.V. /Therapeutic archive. 2004 - P.39.45.

5. Umarov R. Kh., Yakhyaeva K. Z., Inoyatova F. Kh. The influence of omakor on indicators

lipid metabolism in children suffering from glomerulonephritis with nephrotic syndrome // Nephrology. – 2008. – T. 12. – No. 2. – pp. 47-51.

6. Audard V., Lang P., Sahali D. Minimal change nephrotic syndrome: new insights into disease pathogenesis // Med Sci (Paris). – 2008. – Vol. 24, № 10. – P. 853-858.

7. Banerjee S, Pahari A, Sengupta J, Patnaik S. Outcome of severe steroid-dependent nephrotic syndrome treated with mycophenolatemofetil. *Pediatr Nephrol* 2013; P.28:93-97.

8. L.K. Raxmanova, U.N. Karimova, N.A. Israilova, Yakhyaeva K.Z., S.A. Latipova. Regularities of Immunity in Nephrotic Syndrome in Children With COVID - 19 Against the Atopic Background // *Turkish Journal of Physiotherapy and Rehabilitation* ISSN 2651-4451, Vol 32 (2), 2021 P. 4391-4394.

9. K.Z. Yakhyaeva. Infectious factors in the development of renal pathology in children. // *Current issues of nephrology. International scientific and practical conference - Tashkent - 2019.* - pp. 133-134.