ANTIOXIDANT THERAPY IN PATIENTS WITH CHRONIC NEPHROTIC GLOMERULONEPHRITIS

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Abstract. *According to the modern concept, pathological processes are realized on cell membranes, causing a violation of the structural and functional organization, up to complete destruction. The use of glucocorticoid and cytotoxic therapy in combination with heparin does not guarantee success and lead to complications, especially in children. Consequently, the search for drugs that remove the toxic effects of immunosuppressive therapy continues to be an urgent medical and social problem. What was the reason to study the features of antioxidant therapy in order to optimize the pathogenetic treatment of chronic glomerulonephritis in children? The advantage of therapy with the inclusion of actovegin antioxidant was that parallel to the normalization of malondialdehyde and lysophosphatidylcholine, the other cell membrane fractions increased, apparently due to the ability of aktovegin to reduce the activity of phospholipases. The conducted research will allow to review the tactics of treatment of nephropathy in accordance with the obtained research results, to include in the complex therapy a step-by-step correction of membrane destabilization with Actovegin. In addition, pathogenetic therapy for glomerulonephritis is fraught with complications, ultimately associated with a violation of cellular stability and requires corrective antioxidant therapy.*

Keywords: *glomerulonephritis, nephrotic form, antioxidant therapy.*

INTRODUCTION

According to surveys among children, acute glomerulonephritis is 1.1 per cent, chronic at 0.4 per cent. Glomerulonephritis in children tends to increase with the development of chronic kidney failure [1]. High temperatures of up to 41 degrees and above up to 110 days per year, with low relative humidity of up to 20% in Uzbekistan, result in adaptive shifts in the kidneys. Lipid peroxidation activity (LIPID PEROXIDATION) is increased, free radicals' concentration is increased as a result of prolonged exposure, antioxidants are depleted [7]. The achievements of modern clinical membranology make it clear that the most important mechanism for regulating the state of cell membranes during adaptation and under stress during the development of various diseases, is the peroxidation of lipids of unsaturated fatty acids and phospholipids flowing along a free radical path. According to the modern concept, pathological processes are realized on the cell membranes, causing structural and functional disruption, up to peroxidation lipid destruction. The volatile oxidation of lipidoformation by glucocorticoid and cytotoxic therapy combined with heparinotheapia do not guarantee success and lead to complications, especially in childhood [2]. Consequently, the search for drugs that relieve the toxic effects of immunosuppressant therapy continues to be a pressing medical and social problem. [3].

The purpose of this work was to determine the effectiveness and indications for the prescription of antioxidant therapy in children with chronic glomerulonephritis nephrotic form.

Research materials and methods

Studies were conducted on 125 patients with chronic glomerulonephritis. The Monitoring Group served 31 practically healthy children of the same age who were not affected by nephropathy. The content of general lipids, cholesterol, concentration of phospholipids by the dencytometer «Byan» by M.H.Turakulov, fraction of phospholipids by E.Stahl method in

modification of V.I.Krylov and non-esterified fatty acids,the activity of peroxidation of lipids, determined by the indicator of malonon dialdehyde, the activity of phospholipase A² method. A study of healthy children has been conducted to determine the impact of climate on membrane health. As a result, a higher content of lysophosphatidylcholin, the most toxic fraction of phospholipids, was found in the membrane in summer. Compensatorively, in the summer increases the content of phosphatiedylethanolamine, osfatidil ethanolamine, sphingomyelin. In healthy children, lipid peroxidation has been found in small dialdehyde and sphingomyelin (0.55); sphingomyelin and phosphatidylethanolamine (0.6); phosphatidylcholine and lysophosphatidylcholine (0.53). In the active stage of chronic glomerulonephritis in the summer, the highest content of Malon dialdehyde was found as an indicator of high lipid peroxidation activity and was accompanied by an increase in lysophosphatidilcholine content in cell mebranes.

The increase in lipid peroxidation activity in summer was also accompanied by high blood phospholipase activity in patients with a nephrotic form of chronic glomerulonephritis compared to winter. Lipid peroxidation correlated with lysophosphatidylcholine and phosphatidyl ethanolamine (0.82), lysophosphospatidilcholine with phosphatidylcholine (0.74), lysophosphospatidilcholine with phosphatidylserine (0.8). phosphatidylserine with phosphatidylcholine (0.8) is active in patients with glomerulonephritis. In the remission phase, the association of lysophosphathyldilcholine with other phospholipid fractions disappears. In this regard, Aktovegin is included in our complex therapy. The drug is selected as an antioxidant, due to the content of superoxide-dismutase, (72.8 7.1 ml) is characterized by high antioxidant activity compared to other antioxidants. In addition, aktovegin contains macro and trace elements that are part of the enzymes involved in oxidative processes. During the activity of glomerulonephritis intravenously injected 600 - 2000 mg/day in/in drip 10 - 14 days, then transferred to a drage of 200 - 400 mg 2 times per day per os - 1-2 months Dosing of the drug was carried out depending on the age The course was repeated 3-4 times a year if necessary without a break during the year depending on the dynamics of the process. The advantage of Aktovegin antioxidant therapy was that in parallel with the normalization of the indices of Malon dialdehyde and Lysophosphatidilcholine, other cell membrane fractions increased,obviously related to the actovegin's ability to reduce phospholipase activity. In contrast to the patients, peroxidation lipid oxidation only heparin or in combination with prednisolone, the group of patients with the introduction of aktovegin in a shorter period (10 3 days) normalized the clinic, biochemical parameters, including coagulogram. The heparin dose did not exceed 150ed/kg per day.

This effect of activating actovegin appears to be due to the elimination of the synergistic effect of heparin with phosphate-yl ethanolamine, which inhibits the interaction of factor 12 with prothrombin, phosphatidylserine inhibiting protrobing activity and autoimmune lipidovimerization of monomeric fibrin. within 30 days, which helps to reduce the dose of heparin to 100 units per 1kg of weight per day and reduce the duration of its use from 30 to 20 days. In parallel with the increased activity of LIPID PEROXIDATION, the total phospholipid content is reduced and the LF value in the membrane is increased, which leads to its destabilization. In remission, the structure of the membrane is restored, as the reduction of the small dialdehyde is accompanied by a decrease in LF levels in the erythrocyte membrane. Thus, in remission of glomerulonephritis membrane peroxidation lipid does not restore the structure of the membrane of healthy children, and cellular membrane phospholipids in patients with acute nephrotic syndrome are in a state,dynamically influencing cellular preservation under peroxidation conditions.

Research results.

Thus, against the background of pronounced clinical manifestations and urinary syndrome in patients with chronic glomeroelecteritis in the nephrotic form increases the intensity of lipid peroxidation. In peroxidation lipidovyse lipid oxidation of such pre-oxidation lipid oxidation also says the identified lipid lipid oxidation bond of the malone dialdehyde and LF during the aggravation period (h=0. 476.p <0.05). And in remission, his activity decreases. The dynamics of the spectrum of phospholipids with the predominant accumulation of unsaturated phospholipids in lipid bislu indicates the absence of lipid peroxidation in the cytomembrane state in patients with chronic nephrotic glomeroenlytis. Lipid peroxidation correlated with lysophosphatidylcholine (h=0.465; p<0.01), negative correlation of total phospholipids and sphingomyelin (h=0.661; p<0.01), indicating thatthat when lipid peroxidation activity increases, lysophosphatidyllin and sphingomyelin increase, while total phospholipids decrease.

In remission of glomerulonephritis membrane peroxidation lipid does not restore the structure of the membrane of healthy children, and the phospholipids of cell membranes are in a condition that dynamically determines cellular preservation under peroxidation conditions... In remission, LF,FS,oddnako in parallel increases phosphatidyl ethanolamine to 0.34 0.02, p<0.05 and remains elevated FH(0.34 0.03 mmol/l).

Clinical and laboratory remission of patients with chronic glomeroenlephritis increased the level of small dialdehyde and lysophosphatidylcholine and reduced the number of total phospholipids, which may indicate the activity of the disease. We associate these changes with the fact that as a result of reduced activity, lipid peroxidation during remission produces phospholipid synthesis, while reducing the amount of total phospholipids in plasma,negative correlation of total phospholipids with lysophosphatidylcholine (h=0.401,p<0 0 05), phosphatidylserine(h=0.491,p<0.05), sphingomyelin (h=-0.481,p<0.05) during the remission period, that is, the inflammatory oxidation of the lipid-free defect of the oxidized fractions leads to a decrease in the total phospholipids.

CONCLUSIONS

1. State analysis of lipid peroxidation and spectrum of erythrocyte membrane phospholipids found high lipid peroxidation activity during the exacerbation period with increased lysophosphatidylcholine fraction, reduction of total plasma phospholipids,during the remission-absence of cell membrane stabilization against the background of reduced lipid peroxidation intensity and a decrease in the malone dialdehyde, in patients with chronic nephrotic glomeroelecteritis.

2. The ratios we've discovered in the spectrum of phospholipids are explained by the change in their oxidation rate, which allows the cell metabolism to be restructured in the membrane in response to various effects, the phospholipid mobility to be lost, significant in the chronology of glomerulonephritis and renal deficiency.

3. The conducted studies allowed to revise the treatment tactics of nephropathy in accordance with peroxidation lipid-induced results of research, to include in complex therapy stage correction of destabilization of the membranes by actovegin.

As a result of the conducted studies, seasonal features of meteotropic reactions at the cellular level have been established, taking into account the role of periacidic oxidation of cell membrane lipids, hemostasis factors in climatic conditions in Uzbekistan, as determinants of meteorological sensitivity, occurrence and current of glomerulonephritis. In this regard, the study of mechanisms for membrane adaptation can make significant adjustments and offer practical recommendations for the development of principles for the prevention of glomerulonephritis in hot climates. In addition, pathogenetic therapy in glomerulonephritis is fraught with complications related ultimately to the breakdown of cellular stability and requires corrective antioxidant therapy

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