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CLINICAL AND LABORATORY INDICATORS IN PREDICTION OF ACUTE GLOMERULONEFRITIS IN CHILDREN WITH NEPHROTIC SYNDROME

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ANNOTATION
In the development of chronic renal failure in children, the proportion of glomerulonephritis is still significant. Identification of chronic kidney pathology at the initial stage is important to improve the effectiveness of preventive and therapeutic measures aimed at slowing down the progression of the disease. We examined 76 patients with acute glomerulonephritis with nephrotic syndrome aged 2 to 5 years, including 31 boys and 45 girls. The development of the forecast algorithm was carried out by the method of sequential Wald analysis. A score of 10 was used as a threshold to conclude on the prognosis. The peculiarity of the course of glomerulonephritis in children was that the disease develops against the background of hereditary predisposition.
KEY WORDS: *glomerulonephritis, nephrotic syndrome, patients, course, prognosis.*

INTRODUCTION

Glomerulonephritis is one of the main causes of chronic renal failure (CRF). The prevalence of the disease is growing in many countries of the world, and therefore it becomes extremely necessary to study the clinical course and prognosis of renal diseases [1,2,7,13,16].

In modern nephrology, age-related features of glomerular diseases are considered in two directions: differences between children and adults are studied, as well as features in children and adults depending on their age at the onset of the disease [6,7,9,12,14].

According to epidemiological studies, the structure of glomerular diseases may change. The development of nephrotic syndrome is associated with an increase in the permeability of the glomerular filtration barrier for macromolecules.

It is known that glomerular diseases can lead to a decrease in renal function. For a long time, impaired renal function can occur latently. Identification of chronic renal failure (CRF) in the initial stage is important to improve the effectiveness of preventive and therapeutic measures aimed at slowing down the progression of the disease [3,8,11,15,17]. Therefore, predicting the outcomes of glomerulonephritis in early childhood continues to be an urgent medical and social problem [5,10].

PURPOSE OF THE STUDY

to determine the diagnostic significance of clinical and laboratory parameters in predicting acute glomerulonephritis with nephrotic syndrome in children.

MATERIAL AND RESEARCH METHODS

Patients with acute glomerulonephritis (76) with nephrotic syndrome aged 2 to 5 years were examined, including 30 boys and 44 girls. The patients were divided into 2 groups. The first group consisted of 35 patients who had no recurrence of the disease for two or more years, the second group included 39 patients who did not achieve complete remission and developed a chronic form of the disease (CHN). The development of the forecast algorithm was carried out by the

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method of sequential Wald analysis [4]. A score of 10 was used as a threshold to conclude on the prognosis. The conclusion about the high probability of the transition of the disease to chronic glomerulonephritis was determined if the patient had more than 10 points. The development of the Wald sequential analysis algorithm was carried out by determining the frequency of symptoms in each group as a percentage. The evidence of statistical reliability of the difference in the frequency of symptoms is determined by the formula: t=P1 P2 / M221-M22. The proof of the independence of signs of detection of prognostic symptoms was the determination of the correlation coefficient for qualitative signs, which is calculated by the formula:

H \u003d ao - c / (a + in) x (c + d) x (a + s) x (in + d), where the letters indicate the signs. Correlation coefficient for quantitative traits, where “x” and “y” are average correlated traits. Tx Ty standard deviation: H \u003d (x-x) x (y-y) / n (Tx-Ty). The determination of the relative probability and the calculation of the prognostic coefficient were carried out according to the formula: PC = 10 lg P1/P2.

Indicators of unfavorable prognosis with a positive sign, because in the numerator, the frequency of symptoms characteristic of the group with developed CGN, and in the denominator, symptoms characteristic of the group with acute glomerulonephritis with long-term clinical and laboratory remission. Taking into account the hypothesis with a normal distribution, the information measure was calculated using the Kullbach formula [2]. According to the degree of information content, the following signs were selected, listed in the table, where PC is a prognostic coefficient, J (xi) is information content.

RESEARCH RESULTS

A comparative assessment of hereditary burden revealed that a prognostically unfavorable sign of chronicity was the presence of kidney diseases in relatives in the pedigree, the prognostic coefficient (PC) was 9.9 and significantly informative +1.65. From the anamnestic data, there were frequent sore throats (PC = 15.3) with the highest information content among all other signs (6.12), food and drug allergies, parasitic infestations, PC = 5.2 and 6 with an information value of 1.35 and 6, respectively. 1.02. Thus, if the total score exceeds the threshold unit “10”, the patient has an unfavorable prognosis and belongs to the high-risk group requiring appropriate therapy.

Of the laboratory studies, the most unfavorable prognostic indicator was partial renal dysfunction: hypo- and hyperkalemia, proteinuria more than 3 g/l per day. According to the coagulogram, there was plasma tolerance to heparin (7.6). According to the analysis of excretory urography, unfavorable factors of chronicity were an increase in the size of the kidneys (PC = 17), information content 1.76, an increase in the nephrographic effect (PC = 12) with information content 1.24. In the genesis of damage to renal structures in acute glomerulonephritis, a high information content of malondialdehyde was established with its increase from 6.8-8.4 nmol/mg/lipids in the cell membrane. Despite a slight difference in the indices of phosphatidylcholine, phosphatidylethanolamine, lysophosphatidylcholine in erythrocyte membranes in acute and chronic glomerulonephritis, compared with those in the control group, their information content is high - 96, 88, 21, respectively.

The study of thyroid function in patients with acute glomerulonephritis with long-term remission: the level of thyroxine-bound globulin - 0.52 ± 0.086 nmol / l, triiodothyronine 1.32 ± 0.15 nmol / l, thyroxine - 99.96 ± 7.13 nmol / l , no significant difference was found in patients with AGN and CGN. However, if we take into account that the sum of prognostic coefficients is reliable at a value of 19.5, then a significant difference between patients of both groups is revealed.

The next stage of the study was the analysis of information content, which reflects the degree of approximation of the diagnosis to the correct diagnostic threshold. An informative measure of more than 3 was recognized as highly informative, but not less than 1, because 3 - 4 such signs are sufficient to reach the +10 threshold, i.e. providing no more than 10% errors. Such signs, for example, were a decrease in alpha - globulin, an increase in gamma - globulin, hyperlipidemia, an increase in cholesterol. Signs such as hypercoagulability, a decrease in endogenous creatinine against the background of a hereditary burden of kidney pathology, an increase in malondialdehyde and lysophosphatidylcholine, a decrease in phosphatidylethanolamine and phosphatidylcholine were prognostically

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unfavorable indicators. These indicators characterize the high activity of lipid peroxidation, leading to destabilization of cytomembranes and the formation of a prognostically unfavorable course of nephrotic syndrome in patients with glomerulonephritis.

CONCLUSIONS

1. In the development of chronic renal failure in children, the proportion of glomerulonephritis is still significant.
2. The peculiarity of the course of glomerulonephritis in children is that the disease develops against the background of hereditary predisposition.
3. The chronicity of the disease is due to the instability of cytomembranes against the background of increased activity of lipid peroxidation.
4. In connection with the established facts, timely diagnosis of factors leading to chronicity is necessary, as well as prevention of the formation of cytomembrane instability with immunological control of the treatment.

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