

CLINICAL-NEUROLOGICAL MANIFESTATIONS OF THE PATHOLOGY OF THE NERVOUS SYSTEM IN CHRONIC GLOMERULONEPHRITIS IN CHILDREN

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ABSTRACT

Objective: To analyze the main clinical and neurological manifestations of pathology of the nervous system in CGN.

Patients and Methods: A total of 30 apparently healthy and 120 children aged 7-15 years with different forms of CGN. CKD stage was determined according to the classification of K / DOQI, approved by the Congress of pediatric nephrologists Russia. Patients in stages of CKD were divided into 4 groups: 1st - CKD C1 (12); 2nd - CKD C2 (50); 3rd - CKD C3a (34); 4th - CKD S3b and the presence of signs of PE (24). Assessment of the neurological status was carried out in conjunction with neurologists. Analyzed two main syndromes: asthenovegetative; encephalopathy. Digital material is treated by variational-term statistics.

Results: asthenovegetative syndrome in patients with CGN was detected more frequently in children with CKD stage S3b and to a greater extent in the presence of KE, appearing mainly headaches and emotional lability, wearing transient. In addition, the marked clinical manifestations of encephalopathy syndrome: aniso reflection, paresis VII - XII pairs of cranial nerves, coordination disorders and horizontal nystagmus. The detection rate and horizontal nystagmus aniso reflection depended on the extent of damage nitrogen excretion renal function and increased sharply in the group of children with PE. Conclusion: The results dictate the need to control symptoms of hepatic encephalopathy and the corresponding correction of neuroprotection.

Keywords: children, chronic glomerulonephritis, renal encephalopathy, asthenic-vegetative syndrome; encephalopathic syndrome
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INTRODUCTION

Due to the increasing frequency of chronic glomerulonephritis (CGN) among all diseases of the urinary system in children and the need to prevent the development of chronic renal failure (CRF) assessment of the flow CGN acquired special urgency [1,2]. The final stage of chronic renal failure CGN is characterized by clinical uremia. In uremia is a violation of the urea cycle, changes in the exchange of arginine, retention of guanidine and its derivatives - acid accumulation of toxic metabolites and the development of toxemia due to violations of the processes of excretion [3,4,5]. All these factors have a toxic effect on the various organs and systems [3], including the central nervous system, promoting renal encephalopathies (PE) [6].

The prevalence of lesions of the nervous system, the severity of its course and often fatal disease makes it relevant to the study clinic, diagnostics and issues of pathogenetic therapy of the disease.

Objective: to study the basic clinical-neurological manifestations of the pathology of the nervous system in CGN.

Patients and methods. The study is based on the analysis of the results of the survey of 120 children aged 7-15 years (mean age $11,83 \pm 0,27$), treated at the clinic TMA-1 and in the city center of

Nephrology from 2008 to 2011. with various forms of CGN. At the age of 7-12 years were 52 (43.3%), 13-15 years old - 68 (56.6%) patients. Clinical diagnoses were as follows: CGN hematuric form - 14, CGN nephrotic form (gormonrezistentny and hormone variant) - 75, CGN mixed form - 31 patients. Duration CGN averaged $4,32 \pm 0,78$ years and ranged from 1 to 12 years. The control group consisted of 30 apparently healthy children of the same age.

All patients underwent a comprehensive examination, which included biochemical and clinical blood, urine, registration hemodynamic parameters, renal ultrasound. Because in addition to the nosology of disease prognosis is also affected by the stage of chronic kidney disease (CKD), which corresponds to a certain level of glomerular filtration rate (GFR), indicators of GFR was determined by the Schwartz formula. HPB stage was determined according to the classification of K / DOQI (2009) [3], approved by the VII Russian Congress of pediatric nephrologists Russia (2011) [7]. In the course of distribution of CKD in stages, it was noted that the first three stages are the most common (C1 - 12, C2 - 50, -34 and C3a S3b - 24). In this case, the last two stages (C4 and C5) of the surveyed patients were not identified. An important factor in the progression of chronic renal failure in CGN is hypertension, which in the onset of nephrotic syndrome in hematuric option and as part of a mixed variant of CGN flow in 45 patients.

Assessment of the neurological status was carried out in conjunction with the neurologists. There are clear signs of PE was detected in 24 patients with CKD stage S3b (significant reduction in GFR). Therefore, all patients stages were divided into 4 groups: Group 1 - CKD C1 (12 patients); Group 2 - CKD C2 (50 patients); Group 3 - CKD C3a (34 children); Group 4 - CKD S3b and the presence of obvious signs of PE (24 patients).

Digital material is treated by variational statistics using a computer program Exel-70 using the t Student test. Statically significant results was considered at $P < 0.05$.

RESULTS

In a study of patients initially attracted attention diffuse neurological disorders manifested variety of clinical symptoms. However, of all the variety of symptoms, we studied: asthenovegetative; encephalopathy.

Asthenic-vegetative syndrome was made up of subjective symptom-atoms: headache, dizziness, sleep disturbances, emotional instability. There was also an objective symptoms: marble skin, marked dermographism, sweating palms and feet. Of the 120 patients surveyed asthenic-vegetative syndrome manifestations of headache was observed in 77 (64.2%) children, its frequency increased with the degree of progression of CKD. Basically headache in 77.9% was characterized by tension-type headache and 22.1% was hypertensive. Tension headache occurs more frequently after 2 or 3 lessons localized in the temporo-occipital and temporal lobe areas. It increases with stress and change in the weather. Hypertensive nature of pain accompanied by a feeling of pressure on the eyeballs, wore arching problems that arise during the night and in the morning, mainly in patients with hematuric and mixed forms of CGN.

Dizziness was observed in 28 (23.3%) patients with CNG. Dizziness was basically a non-systemic nature and manifested as a feeling of "falling", faintness, instability, loss of balance. For dizziness systemic nature the feeling of displacement of objects at fixation, trunk rotation, shaking. Complaints of dizziness impose more BABY3 rd and 4 th group. Sleep disturbance in the form of difficulty in falling asleep occurred in 33 (27.5%) patients with CGN, especially with moderate and significant reduction SKF. Emotional lability encountered in 62 patients (51.7%) and to a greater extent in children with impaired nitrogen excretion function, and of concomitant KE.

Encephalopathic syndrome characterized by various scattered focal neurological symptoms: recovery of tendon and periosteal reflexes anizorefleksiya, coordination disorders, central paresis 7 and 12 pairs of cranial nerves (FSK). Neurological disorders occurred more frequently in patients with a significant reduction in GFR. Aniso reflection occurred in 47 (39.2%) of the total number of patients with KSSRIM mainly with impaired renal function. In the 3rd and 4th groups, this feature was detected in 52.9 and 70.8% of the patients, which is significantly higher than in children with preserved function kidney. Central paresis VIIi HIIpary CHMN noted in 8.3 and 16.7% of children 1 th, 12 and 14% of the examined 2 minutes, at 26.5 and 29.4% of patients 3rd, 37.5 and 41.7% of patients in Group 4. The next manifestation of encephalopathy syndrome appeared, coordination disorders. They also prevailed in patients 3-yi 4th groups. Horizontal nystagmus was observed in 8.3% of patients 1st, 28% of surveyed 2nd, 41.2% of patients with the third and 54.2% of children of the 4th group.

Discussion. In the development of the nervous system plays the role of a number of violations of various types of metabolism. It is based on a combination of hyperammonemia and blockade of neurotransmitters, metabolic γ -aminobutyric acid endo toxemia of different origin, processes, oxidative stress, metabolic metalloproteins, proteinuria, blood-brain barrier function and intracellular accumulation of calcium ions, which induces apoptosis of brain neurons [6,12, 13]. By the pathogenetic factors that contribute to neurological disorders are also visceroreflex CNS effects that take place through the sympathetic and parasympathetic fibers of the autonomic nervous system innervating the kidney.

Violations of the autonomic nervous system in CGN often manifested by increased sympathetic tone and appears sympathetic-adrenal crisis [3,6]. The presence of these patients seizures sympaticoadrenal type, the various manifestations of autonomic discomfort, disorders of sleep and wakefulness evidence of active participation in the pathological process of hypothalamic oblasti. Expressed signs of hypothalamic area, which is the main regulatory element immunogenesis nephrotic form of the disease suggest a role of immune mechanisms in the development of pathological changes in the nervous system-temy. The main role of in the pathogenesis of neurological complications in giperten-invasive stage CGN belongs vascular factor [6]. Manifestations of vascular disease are different in different phases of renal disease. In the initial stages of vascular disease is a sign of high permeability of the vascular wall. Subsequently can lead to rupture of the vessel, and the development of thrombi resulting foci detected softening brain tissue cysts smaller. Major changes occur in the blood vessels and is characterized by diffuse, prevalence of lesions. Acute vascular changes in the form of fibrinoid swelling and fibrinoid necrosis combined with multiple sclerosis, fibrosis, hyalinosis capillaries and veins precapillaries. In the arteries and veins observed a sharp drop in vascular tone, paresis of the vascular walls with lots of small diapedetic hemorrhage. In hypertensive stage renal disease - chronic glomerulonephritis there is great hyalinosis severity of the vascular wall, whereas in nephrotic form of chronic glomerulonephritis are more pronounced signs of swelling of brain tissue.

Conclusion. Based on these data can be done after-following conclusions:

1. asthenovegetative syndrome in patients with CGN frequently detected in children with CKD stage S3b and to a greater extent in the presence of PE, appearing mainly headaches and emotional lability, wearing transient.
2. Children with CGN identified clinical manifestations of encephalopathy syndrome: anizorefleksiya, paresis VII - XII pairs of cranial nerves, coordination disorders and horizontal nystagmus. The detection rate and horizontal nystagmus aniso reflection depended on the extent of damage nitrogen excretion renal function and increased sharply in the group of children with PE.

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