



COMPARATIVE INDICATORS OF CELLULAR AND HUMORAL FACTORS OF IMMUNITY IN GLOMERULONEPHRITIS AND NEPHROPATHIES OF EXCHANGE GENESIS IN CHILDREN

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ANNOTATION

With pronounced destructive changes in the basement membrane of the glomeruli, the urinary excretion of immunoglobulins-G and A increases. Therefore, the determination of the amount of serum immunoglobulins and their excretion in the urine is important. We carried out a study of the quantitative content of serum immunoglobulins of class A, M, G, as well as the relative content of T- and B lymphocytes in 24 children with glomerulonephritis and nephropathies of metabolic genesis at the age from 2 to 14 years. Immunoglobulins were determined by the method of radial immunodiffusion according to Mancini, T and B lymphocytes by the method of E - and EAC - rosette formation. The results obtained showed that in acute glomerulonephritis, there is a decrease in the level of IG-J and IG-A, respectively, 630 mg% and 130 mg% compared to the age norm: 1025 mg% and 160 mg%. IG-J -460mg% and IG-A -85%. All patients had high levels of immunoglobulin -M: 120 mg% with OHN and 155mg% with chronic renal failure compared with the age norm - 98mg%. Thus, the determination of the amount of serum immunoglobulins and the main subpopulations of lymphocytes is of great importance in understanding the essence of immune disorders and in choosing the correct therapy.

KEY WORDS: *immunity, antigens, acute glomerulonephritis, antigen - antibody, immunoglobulins, lymphocytes.*

RELEVANCE

Currently, the role of immune mechanisms in the development of many kidney diseases is beyond doubt. These mechanisms are: 1) the reaction of antibodies with renal antigens. 2) antigen-antibody complexes formed in the circulatory system and then deposited on the renal structures. These two mechanisms are responsible for the occurrence of most kidney diseases in humans caused by immune reactions (1,2,3,6,8).

Currently, three main mechanisms are given importance in the development and progression of chronic glomerulonephritis: immune, hemodynamic and metabolic. However, in the development of glomerulonephritis, the first of these factors is of the greatest importance. The role of cellular auto-sensitization in kidney diseases has not been sufficiently studied. There are some kidney diseases that clinically occur nephrite-like syndrome and are caused by hereditary metabolic disorders. These include dysmetabolic nephropathies.

The role of the immune system in the occurrence of these diseases has not been sufficiently studied, especially depending on the stage of nephropathy of exchange genesis. Many drugs used

in kidney diseases have an immunosuppressive effect (prednisone, heparin, cytostatics, etc.). Therefore, the study of the main subpopulations of lymphocytes is of great clinical and diagnostic importance. The effectors of the humoral link of immunity are antibodies belonging to a certain class of immunoglobulins. Currently, all immunoglobulins are divided into 5 classes - immunoglobulins -G, M, A, D, E (1,2,4,7,8,9).

Up to 70-75% of the total number of immunoglobulins are IgG. These include antibodies against most antigens of various nature, which explains their important role in the protective reactions of the body. Immunoglobulin A accounts for up to 20% of all immunoglobulins and has a secretory form that participates in the formation of local immunity. Immunoglobulin M contains up to 10% and is formed at the first stages of the immune response, followed by switching to IgG synthesis. The sum of immunoglobulins -D and E does not exceed one percent. During morphobiopsy examination, granularly located deposits of the immune complex consisting of immunoglobulin -G, complement and antigens are determined in the glomeruli of the kidneys (2,3,7,8).



THE PURPOSE OF THE STUDY

With pronounced destructive changes in the basement membrane of the glomeruli, urinary excretion of immunoglobulins- G and A. Therefore, determining the amount of serum immunoglobulins and their excretion with urine is important.

MATERIALS AND METHODS

We conducted a study of the quantitative content of serum immunoglobulins of class A, M, G, as well as the relative content of T- and B-lymphocytes in 24 children with glomerulonephritis and nephropathies of exchange genesis aged 2 to 14 years. Immunoglobulins were determined by Mancini radial immunodiffusion, T and B lymphocytes by E- and EAC-rossette formation. There were 7 children with acute glomerulonephritis, 4 with chronic glomerulonephritis, 3 with exchange-related nephropathies, 8 with isolated urinary syndrome and 2 children with pyelonephritis.

RESULTS AND THEIR DISCUSSION

The results showed that in acute glomerulonephritis, there is a decrease in the amount of IgG and IdA, respectively, 630 mg% and 130 mg% compared with the age norm (1025 mg% and 160 mg%). In chronic glomerulonephritis, the decrease in the level of these immunoglobulins is significantly pronounced: IgG - 460-mg% and IdA - 85-mg%.

All patients had high rates of immunoglobulin M: 120 mg% for OGN and 155 mg% for CRF compared with the age norm - 98 mg%.

In nephropathies of exchange genesis with isolated urinary syndrome, the amount of immunoglobulin G was slightly reduced (841 mg%), and with the layering of pyelonephritis, its level decreased significantly, but these indicators were higher than in acute and chronic glomerulonephritis (637 mg%). The level of immunoglobulin A was low (71 mg%) with the layering of pyelonephritis, which indicates a decrease in local immunity. Our data coincide with the data of some authors (Zhiznevskaya I.I., Khmelevskaya I.G. et al. 2016). These authors associate a decrease in the level of immunoglobulins G and A with their loss in urine and the immunosuppressive effect of prednisone.

The state of cellular immunity was characterized by the fact that in acute and chronic glomerulonephritis there was a decrease in the relative index of T lymphocytes, respectively: 53% and 48% and an increase in the relative index of B lymphocytes, respectively 26% and 22% compared with the age norm (65% and 21%). With nephropathy of exchange genesis with isolated urinary syndrome, the level of T- and B-lymphocytes was within the normal range, and with the layering of pyelonephritis, a slight decrease in the relative index of T lymphocytes was noted - 60%.

CONCLUSIONS

Thus, the results of our study showed that the nature of the course of glomerulonephritis and nephropathies of exchange genesis is determined by the characteristics of immune disorders. Determining the amount of serum immunoglobulins and the main subpopulations of lymphocytes is of great practical importance in understanding the essence of immune disorders and in choosing the right therapy.

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