**International Journal of Studies in Natural and Medical Sciences**
Volume 02 Issue 06, June, 2023
ISSN (E): 2949-8848
Scholarsdigest.org

# Characteristics of Immunopathological Changes with Nephrotic Syndrome in Children with Lymphatic Diathesis

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**Abstract:**
Glomerulonephritis (GN) is a genetically determined immune-mediated inflammation with a predominant lesion of the glomeruli and the involvement of all renal structures in the pathological process, clinically manifested by renal and extrarenal symptoms. In a number of parenchymal kidney diseases, GN occupies a dominant place, in which chronic glomerulonephritis (CGN) is more than 35% and is one of the common causes of chronic renal failure (CRF). The main manifestation of the nephrotic form of glomerulonephritis is nephrotic syndrome (NS), which is characterized by proteinuria (more than 2.5 g / day or 50 mg / kg body weight), oliguria, edema, hypoproteinemia, hypoalbuminemia, hyperlipidemia, hypercoagulation and develops as the main manifestation of acute and chronic glomerulonephritis. Currently, the problems of progression of steroid-resistant, steroid-dependent and often recurrent forms of CGN in children remain one of the topical issues in the world pediatric nephrology, which is determined by the high incidence of CRF, observed by more than 50% of patients within 5-10 years. Therefore, from a clinical point of view, it is extremely important to search for clinical and immunological predictors of an unfavorable renal outcome, which make it possible to predict the course diseases with an individual assessment of the risk of developing chronic renal failure. In this regard, attention is paid to the nephrotic form of CGN in children against the background of lymphatic diathesis.

## Introduction

Lymphatic (lymphatic-hypoplastic) diathesis (LD) is characterized by a generalized persistent increase in lymph nodes, even in the absence of signs of infection, with a kind of habitus of the child (pallor, lethargy, poorly developed muscles, "adenoid appearance", signs of paratrophy), with reduced adaptation to environmental influences. In LD, clinical and laboratory symptoms are characterized by hyperplasia of the lympho-adenoid system, thymomegaly, insufficiency of local immunity of the respiratory tract, anemia, morphofunctional immaturity of the adrenal gland, heart, hormonal imbalance, dysproteinemia, lymphocytosis leading to the formation of status lymphaticus and the development of unclassified secondary immune deficiency syndrome in a child.

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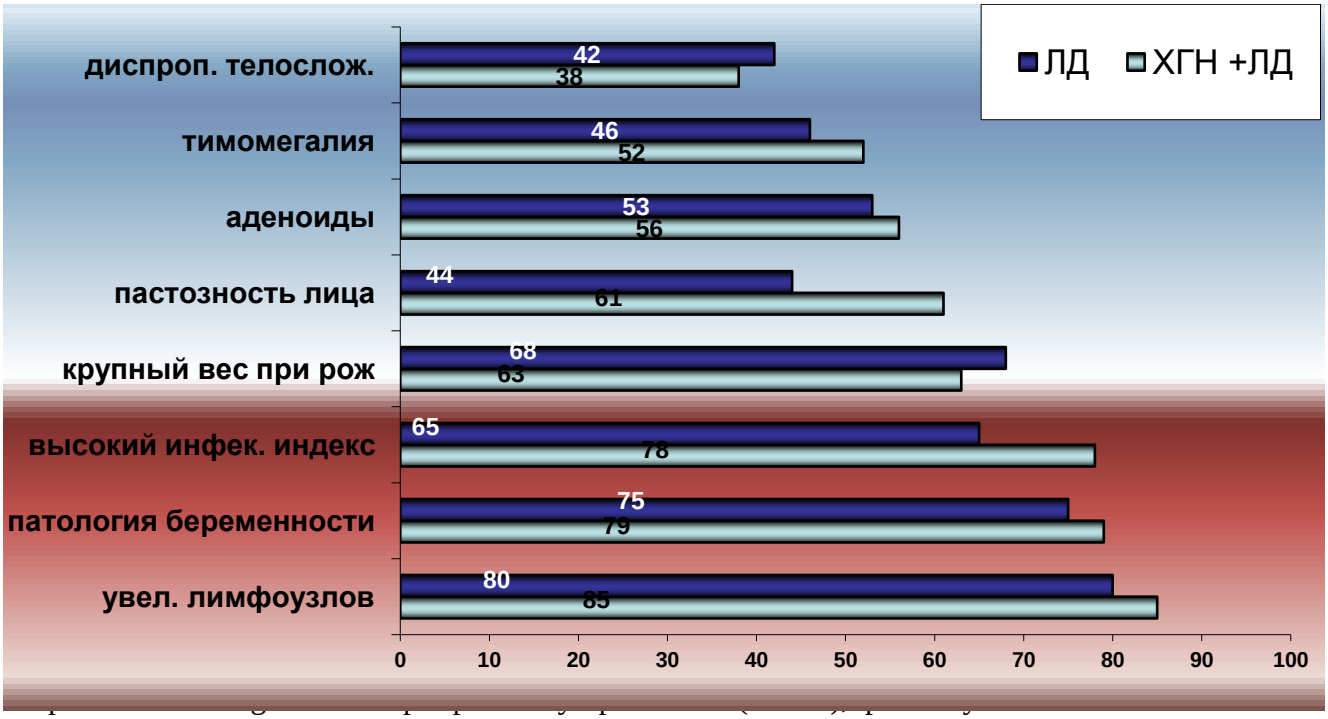
**Materials and Methods**

Under our supervision were: 28 children aged 7 to 11 years suffering from the nephrotic form of CGN on the background of LD. Of these, 14-KHGN + LD (1-group), 14-LD (2-group). The control group consisted of 25 healthy children of the same age. The clinical diagnosis was made on the basis of anamnesis, clinical, laboratory and functional research methods, immunological parameters, as well as clinical and laboratory markers of LD. The state of cellular immunity, antigen-binding lymphocytes (ASL) of the kidneys was studied according to the method of Garib F.Y. and co-authors. Phagocytic neutrophil activity (FAN) by nitrosine tetrazolium test using latex particles. The concentrations of circulating immune complexes (CICs) were determined by precipitation [1], interleukin-2 (IL-2) by Ortaldo J., et al.

The material for the study was venous blood taken in the morning on an empty stomach. The digital data were processed by the method of variational statistics with the calculation of the reliability of numerical differences according to the Student.

**Results and Discussion**

According to the results of the studies, it was revealed that of the observed patients by sex, boys accounted for 66.0%, girls - 34.0%, which confirm the literature sources,




(61.0%), adenoids (56.0%), high infectious index (78.0%). The identified markers of LD differed in occurrence between groups, such indicators as: swollen lymph nodes, high infectious index and pastosity of the face were significantly higher in children of group 1 compared to group 2. The incidence of children with intercurrent pathologies was more than 4 times during the year.

Clinical and laboratory manifestations of NS in CGN with LD were characterized by: edema (100.0%), oligurae (100.0%), "chalky" pallor (72.3%), lethargy (95.0%), headache (63.0%), hepatomegaly (32.2%), proteinuria (100.0%), hypoproteinemia (77.0%), hypoalbuminemia (88.0%), hypercholesterolemia (54.0%) and hypercoagulability (54.0%). Among the comorbidities in children with CGN with LD, a large percentage was: anemia (82.4%), chronic tonsillitis (75.0%), adenoids (61.3%), sinusitis (24.7%), recurrent bronchitis (65.0%), pneumonia (22.0%), thyroid gland (45.4%).

When studying the state of the immune status in patients, there was a significant decrease in the content of T-lymphocytes (T-lymphocytes (T-lymphocyte (T-lymphocyte (T-type4) ($p<0.001$), T-suppressors (T-suppressor (T-suppressor) ($p<<0.001$) compared to the healthy group; an increase in ASL of the kidneys, CIC ($p<0.001$), a decrease in the production of IL-2. The content of B-lymphocytes (T19) significantly differed little from that of healthy children.

During the traditional treatment, despite the improvement of well-being, laboratory, biochemical and functional parameters, 67.0% of patients had moderate proteinuria, hypercoagulation, which was due to a shortening of the remission period and recurrence of the process in the kidneys. Normalization of clinical signs, such as edema, lethargy, "chalky" pallor, hepatomegaly and headache was detected in 68.0% of patients.

**Findings**

1. In children with the nephrotic form of CGN with LD, immunopathological changes are characterized by a decrease in type 3 diabetes, type 4 mark, type 8 diabetes, an increase in ASL of the kidneys, CIC and a violation of IL-2 production, which persist in the period of remission.
2. Preservation in the period of remission of clinical, laboratory and immunopathological changes in the nephrotic form of CGN against the background of LD dictates the inclusion of adequate immunocorrective therapy in the treatment of such patients in complex therapy.

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