JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 11, November 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

PATHOGENETIC BASIS OF CHRONIC PYELONEPHRITIS IN CHILDREN AND ANALYSIS OF THE EFFECTIVENESS OF LYMPHOTROPIC THERAPY

M.Sh. Ganieva
Andijan State Medical Institute

Relevance. Pyelonephritis in children is an infectious inflammation of the kidneys caused by bacteria (most often E. coli), and sometimes viruses and fungi. To date, numerous studies have been conducted to understand the pathogenic basis of the disease, particularly the nature of immune shifts both in general and depending on the pathogen [1,2,3]. The disease manifests itself with fever, intoxication (weakness, nausea, vomiting), and lower back or abdominal pain. It's important to seek medical attention promptly, as delayed treatment can lead to complications, including kidney failure [4,5,6]. Treatment includes antibiotics and is often performed in a hospital. An analysis of literature data and the results of our own observations and research demonstrate the persistent nature and unpredictability of the prognosis for pyelonephritis in children [4,7]. Therefore, the search for new treatment options is particularly urgent.

The aim of the study was to determine the effect of lymphotropic antibacterial therapy and Urovax on immunological changes in chronic pyelonephritis in children.

Material and methods of the study: We observed 52 children with chronic pyelonephritis (25 boys and 27 girls) aged 6-17 years. All children studied were given an examination plan, including a clinical examination, general clinical, biochemical, instrumental, bacteriological and immunological studies (the main indicators of cellular and humoral immunity, The neutrophil damage reaction according to V.A. Fradkin and the passive hemagglutination reaction according to Boyden were carried out with antigens prepared from the medulla and cortex of the intact kidney of a stillborn newborn of the 1st blood group, Rh negative). All children studied were divided into 2 groups: the main group - 18 children who were administered the antibiotic lymphotropically, and were also prescribed the drug Urovax. The control group consisted of 34 children who received an intramuscular antibiotic and traditional urinary antiseptics and herbal therapy. Urovaxom is an immunostimulant drug of bacterial origin. Available in capsules containing lyophilized Escherichia coli bacterial lysate, it stimulates T-lymphocytes and induces endogenous interferon production. In vitro, it stimulates the metabolic and functional activity of macrophages and promotes the release of various lymphokines (IL-2, IL-6, and tumor necrosis factor-α). It has a stimulating effect on macrophages, immunocompetent cells in Peyer's patches and B lymphocytes; it increases the content of IgA, including in urine.

Results of the study: Based on general blood, urine, and stool tests, biochemical parameters, X-ray examinations, and ultrasound of the kidneys, the data obtained did not differ significantly from literature data. Significant importance is given to bacteriological and immunological studies (determination of the number of T-, B- and O-lymphocytes and their subpopulations, immunoglobulins A, M, G, PPN). Urine cultures revealed Escherichia coli in 58.9% of patients, Proteus in 13.2%, Klebsiella in 6%, and Staphylococcus in 22.9%. The clinical course of the disease, regardless of the pathogen, did not differ significantly. All patients demonstrated high sensitivity to oxamp, ciprox, and cefotaxime, which formed the basis of the patients' standard therapy. In the control group, these antibiotics were administered intramuscularly at an age-appropriate dose. In the main group of patients, oxamp or cefotaxime were also administered

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 11, November 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

lymphotropically at a single half-daily dose. The treatment regimen for this group of children included Urovaxom once daily for one month.

In the control group of patients with pyelonephritis, upon admission to hospital, there was a significant decrease in the number of T-lymphocytes (P<0.001), which persisted two weeks after the start of treatment (P<0.001) and even before discharge from the hospital (P<0.001). Along with this, in these patients, at all study periods, there was a decrease in the number of T-helpers and an increase in the number of T-suppressors, a decrease in the Tx/Tc ratio (P<0.01 - P<0.001), an increase in the percentage of O-cells (P<0.001) in the absence of reliable changes in the number of B-lymphocytes in the blood. In addition, in children with pyelonephritis, upon admission to hospital, a slight decrease in the level of immunoglobulin G (P<0.05) was detected, at all study times - a slight decrease in the concentration of immunoglobulin A (P<0.05) and a marked increase in the content of immunoglobulin M in the serum (P<0.01-0.001).

When performing the neutrophil damage reaction (NDR) with antigens of the renal medulla and cortex in children of the control group upon admission to the hospital, two weeks after the start of treatment and before discharge from the hospital, a significant increase was recorded when using the antigen of the medulla (P<0.001). The titer of renal antibodies to the renal medulla antigen at all study times was significantly higher than when using the cortex antigen (99.3, 99.3, and 92.2% versus 73.4, 54.6, and 13.1%).

A comparative analysis of the research results in children from the main and control groups showed ambiguous changes in immunological parameters. In children in the control group who received antibiotics in the traditional way, a deficiency of T-lymphocytes and helpers, an increase in the number of B- and O-cells in the blood (P<0.02 - P<0.001) persisted in all three study periods; the content of immunoglobulin G was normal, immunoglobulin A was reduced, and the amount of immunoglobulin M in the serum increased (P<0.001).

In patients who were administered the antibiotic lymphotropically and orally with Urovax, in the second period of the study, a decrease in the content of T-lymphocytes, helpers and B-cells was observed (P<0.01) against the background of an increase in the number of suppressors and 0-lymphocytes in the blood (P<0.01, P<0.001). However, the identified changes in the content of lymphocyte populations and subpopulations in the blood of patients receiving lymphotherapy and Urovax were less pronounced than in children in the control group. Before discharge from the hospital, children in the main group showed normalization of the number of T-lymphocytes, helpers and suppressors, while maintaining a reduced number of B-lymphocytes (P<0.001) and a slight increase in the number of O-cells in the blood. In the second period of the study, with lymphotropic administration of antibiotics, there was a decrease in the content of immunoglobulin G (P<0.01), as well as a slight decrease in the content of immunoglobulin A. The increase in the concentration of immunoglobulin M in the blood serum in these patients was less pronounced than in the control group of patients.

The results of the PPN reaction showed a less pronounced increase in PPN in patients of the main group not only before discharge from the hospital, but also during the second period of the study (P<0.001). At the same time, in children with acute pyelonephritis who underwent lymphotropic administration of antibiotics and took Urovax, lower titers of antibodies to kidney antigens were observed at all study periods than in patients who received the drug in the

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 11, November 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

traditional way. **Conclusions:**

1. In patients with pyelonephritis who underwent indirect lymphatic antibacterial therapy and took Urovax, there was a more rapid disappearance of the main clinical symptoms of the disease and a tendency towards normalization of laboratory parameters. They were discharged from the hospital 2-4 days earlier than patients receiving traditional antibiotics. The relapse rate also decreased.

2. Comparative analysis of immunological changes in groups of children with traditional methods of antibacterial therapy and children who received lymphotropic antibiotics and the drug Urovaxom, indicate a higher therapeutic effectiveness of the latter, which is confirmed by a more rapid onset of clinical and laboratory remission and normalization of immunological parameters.

References:

1. M.Sh. Ganieva. Candidate's dissertation "Indirect lymphatic antibiotic therapy for acute pyelonephritis in children." Andijan. 1993. 154 pages.

2. Izyumets O.I., Gnatyuk A.I., Shangutova L.A. et al. “Clinical and epidemiological characteristics of primary pyelonephritis in children and adolescents” // Pediatrics. - 2009. - No. 10. - 11 p.
3. Korovina N. A., Zakharova I. N., Mumladze E. B., Ali Ahmed al-Makramani: “Modern approaches to the treatment of pyelonephritis in children”. Pediatrics and neonatology. 03.02.2009.
4. Kuryazova Sh. M., Khudainazarova S. R., Usmanov S. K. Features of the course of chronic pyelonephritis in adolescent girls with anemia. OOO "Izdatelstvo Molodoy Scientist", 2017. Pp. 43-46.
5.Proceedings of the Russian scientific and practical conference "Current problems of pediatric nephrology". - Orenburg, May 21-23, 2010. - Orenburg, 2010.
6. Merkodanova Yu.A. Mechanisms of uropathogenicity of bacteria in chronic pyelonephritis in children. Saratov Scientific Medical Journal. No. 2 / Volume 6 / 2010.
7. Papayan A. V. Clinical nephrology of childhood: A guide for doctors / A. V. Papayan, N. D. Savenkova. - St. Petersburg: SOTIS, 1997. - 720 p.