



PYELONEPHRITIS IN CHILDREN: MODERN ASPECTS OF DIAGNOSIS AND TREATMENT

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ABSTRACT

Pyelonephritis is one of the most common diseases of the urinary system in childhood, accounting for 60-65% of all nephrological pathology in children. The risk of irreversible changes in the renal tissue, which can lead to the chronization of the process and the formation of chronic kidney disease, gives particular relevance to the problem.

Introduction. Infectious and inflammatory diseases of the urinary tract occupy one of the leading places in the structure of childhood pathology, second only in frequency to respiratory diseases. Among them, pyelonephritis occupies a special place – a nonspecific inflammatory process characterized by damage to the calyx-pelvic system and renal parenchyma with predominant damage to tubulointerstitial tissue.

The relevance of the problem of pyelonephritis in pediatric practice is due to several factors. Firstly, the high prevalence of the disease – according to epidemiological studies, the frequency of pyelonephritis is 15-20 cases per 1000 children. In this case, the disease can occur at any age, starting from the newborn period. Secondly, the fact that pyelonephritis in children is characterized by a tendency to relapse and chronization of the process gives special importance to the problem. According to modern data, 20-40% of children who have suffered acute pyelonephritis develop a chronic form of the disease. This can lead to irreversible changes in the renal tissue and, as a result, to the development of chronic kidney disease already in childhood.

The peculiarities of the anatomical and physiological development of the urinary system in children, the immaturity of local and general mechanisms of anti-infectious protection create prerequisites for the development of the disease and determine the originality of its clinical manifestations. In young children, the disease often occurs under the guise of other pathological conditions, which makes it difficult to diagnose in a timely manner and start adequate therapy.

In recent years, there has been a change in the etiological structure of pyelonephritis pathogens, an increase in antibiotic resistance of pathogenic microorganisms, which creates



certain difficulties in choosing a rational antibacterial therapy. In addition, the frequency of congenital malformations of the urinary system increases, which are an important predisposing factor for the development of pyelonephritis in children.

Modern diagnostic methods make it possible to identify the disease at an early stage, but require timely and correct use of various laboratory and instrumental research methods. At the same time, it is of particular importance to develop clear diagnostic algorithms that allow optimizing patient management tactics, taking into account the age of the child and the peculiarities of the course of the disease.

Thus, the problem of pyelonephritis in children remains relevant and requires further study in order to improve the methods of diagnosis, treatment and prevention of this disease. Special attention should be paid to the issues of early diagnosis, forecasting the course of the disease and preventing the development of complications, which determines the need for further research in this direction.

According to modern research, the incidence of pyelonephritis is 15-20 cases per 1000 children. The disease is most common in young children and school-age girls. In the first years of life, boys are more often ill, which is due to the anatomical and physiological characteristics of the urinary tract.

Etiology and pathogenesis

The main causative agents of pyelonephritis in children are gram-negative bacteria, mainly *E. coli* (70-80% of cases), *klebsiella*, *proteus*, *enterococci* are less common. The development of the disease is facilitated by:

- urodynamic disorders
- Congenital malformations of the urinary system
- Vesicoureteral reflux
- Decrease in the immunological reactivity of the body
- Hereditary predisposition

Classification

They distinguish:

1. Downstream:
 - o Acute pyelonephritis
 - o Chronic pyelonephritis
2. By the nature of the occurrence:
 - o Primary
 - o Secondary
3. By stage:
 - o Active phase
 - o Partial remission
 - o Complete remission

The clinical picture

The symptoms vary depending on the age of the child and the form of the disease. Common symptoms prevail in young children:

- Fever
- Anxiety



- Decreased appetite
- Vomiting
- Violation of urination

In older children, local symptoms are more pronounced:

- Pain in the lumbar region
- Dysuric phenomena
- Intoxication

Diagnostics

Modern diagnostics include:

1. Laboratory tests:

- o General blood test
- o General urine analysis
- o Bacteriological examination of urine
- o Biochemical blood analysis

2. Instrumental methods:

- o Ultrasound of the kidneys and bladder
- o Microvascular cystourethrography
- o Radioisotope studies
- o CT/MRI (according to indications)

Treatment

Pyelonephritis therapy in children is complex and includes:

1. Etiotropic therapy:

- o Antibacterial drugs taking into account the sensitivity of the pathogen
- o The duration of therapy is 10-14 days in acute cases

2. Pathogenetic therapy:

- o Anti-inflammatory drugs
- o Herbal medicine
- o Correction of urodynamic disorders

3. Symptomatic therapy:

- o Antipyretics
- o Antispasmodics
- o Detoxification therapy

Prevention and prognosis

Preventive measures include:

- Timely detection and treatment of urinary tract infections
- Correction of anatomical abnormalities
- Rehabilitation of foci of chronic infection
- Strengthening the immune system
- Compliance with the drinking regime
- Proper hygiene

The prognosis with timely detection and adequate treatment is favorable. The risk factors for an adverse course are:

- Late diagnosis



- The presence of congenital anomalies
- Resistance to antibacterial therapy
- Frequent relapses

Conclusion: Pyelonephritis in children remains an urgent problem in pediatrics, requiring timely diagnosis and an integrated approach to treatment. The success of therapy largely depends on early diagnosis, the correct choice of antibacterial drugs and compliance with all preventive measures. Special attention should be paid to young children and patients with risk factors for the development of a chronic course of the disease.

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