

## MODERN VIEWS ON THE DENTAL CONDITION IN CHILDREN WITH CHRONIC PYELONEPHRITIS AND THE IMPROVEMENT OF THE PREVENTION OF CARIES IN THEM LITERATURE REVIEW

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**Abstract:** Of great importance in the development and during the inflammatory process in the kidneys is the presence of organic or functional disorders of Urodynamics. Malformations of the urinary system are diagnosed in more than half of children diagnosed with pyelonephritis. A special place is occupied by vesicoureteral reflux as one of the causes of urodynamic disorders. The development of the process is also facilitated by the presence of dysplasia of kidney tissue. The role of functional urinary tract obstruction associated with neurogenic bladder dysfunctions is also becoming more and more evident.

**Keywords:** Inpatient treatment, chronic pyelonephritis, enamel remineralization, remineralizing therapy.

In recent decades, there has been a significant increase in cases of chronic pyelonephritis in children. This condition is associated not only with the widespread introduction of modern diagnostic methods into clinical practice, but also with a sharp deterioration in environmental factors. The chronic inflammatory process can cause irreversible damage to the renal parenchyma, which leads to the replacement of the affected areas with connective tissue and ultimately to chronic kidney failure.

Chronic pyelonephritis is a dangerous disease caused by the continuation of microbiological and inflammatory processes in the tubulointerstitial tissues of the kidneys. It may be long-term, recurrent, or latent in form. Primary pyelonephritis, on the other hand, occurs mainly as a microbiological inflammatory process in the renal parenchyma, and studies using modern methods do not help to identify the factors of the fixation of microorganisms and the development of inflammation. Secondary pyelonephritis, on the other hand, develops against the background of congenital, hereditary or acquired organic or functional urodynamic disorders present in kidney tissue. For example, a condition known as secondary obstructive pyelonephritis can cause secondary non-obstructive pyelonephritis, especially if it is associated with metabolic disorders, birth defects, acquired immunodeficiency, or endocrine dysfunctions.

Among the diseases that cause kidney failure in young children, pyelonephritis is in the first place. This disease is a largely infectious and inflammatory process that usually occurs in the pyelosalical system and tubulointerstitial zone of the kidney, which does not have a specific sign. The incidence of pyelonephritis has three age-related peaks in the development of children. The first peak occurs in early childhood (up to 3 years old). During this period, girls are more likely to develop the disease compared to boys, and this relative rate is 8:1. The prevalence of pyelonephritis in girls and women is associated with the anatomical features of the urogenital system and the hormonal profile of women. In girls, pyelonephritis can have a latent form that is usually aggravated in adulthood, during pregnancy and in the postpartum period. The

second peak of the disease corresponds to the most active reproductive age (18-30 years). The third peak occurs at the age of old and old, and males are more affected during this period.

In girls and boys, in the first year of life, pyelonephritis is diagnosed at the same frequency, and later in girls more often.

Chronic pyelonephritis is the most common kidney disease and is found in 6-11% of all autopsies, according to various data proven by the high frequency of its detection at autopsy. Pyelonephritis pathogenesis is based on the interaction of microorganisms, these effects depend on the state of immunobiological reactivity (sensitivity) of microorganisms as well as the bioaggressive potential (uropatogenicity) of infectious agents. The main place in the spectrum of bacterial uropatogens is occupied by microorganisms of the Enterobacteriaceae family, including escherichias, klebsiellas, Proteus, etc. According to various authors, this constitutes between 55% and 80% of the spectrum of microorganisms. Escherichia coli plays a leading role in the urinary tract as a pathogen with the largest set of uropatogenic factors among these microorganisms. Second place is occupied by Gram-positive bacteria, mainly from the descendants of Enterococcus and Staphylococcus. In third place is the group in which relatively rare microorganisms are united. Great importance is attached to the parasitism of Gram-positive rods, anaerobic Candida fungi that do not form spores, in the urinary tract. The role of the stability of L-form forms of viruses, chlamydia, mycoplasmas and bacteria that help prolong the tubulointerstitial inflammatory process has been demonstrated.

Papayan A.V. et al., (1998) focuses on the increasing role of conditioned pathogenic flora with high antibiotic resistance in pyelonephritis pathogenesis. Safina A. I. (2016) noted that, despite the normalization of clinical and laboratory indicators of pyelonephritis in 67% of children during remission, the persistence of pathogens persists, which is a factor in the development and recurrence of the disease. Microorganisms enter the kidneys through urogenic and hematogenous pathways. The hematogenous pathway can parasitize against the background of acute diseases of a bacterial nature (bronchitis, pneumonia, tonsillitis) or in the oral cavity, bile ducts, small sips, etc. The urethra is performed when the lower urinary tract is infected or due to the activation of saprophytes present in the distal urethra.

Some authors suggest that the presence of foci of chronic infection and the exacerbation of the microbial-inflammatory process in the urinary system are considered important risk factors for development.

The role of immunological deficiency in the pathogenesis of pyelonephritis is great. However, the issue of the primary or secondary nature of immune disorders in the literature is the subject of discussion by most researchers, to which chronic pyelonephritis is accompanied by the development of secondary immunodeficiency, which is the microbial-inflammatory process itself immune disorders develops under the direct or indirect action of uropatogenic factors. Vyal'kova A.A. et al. (2022) noted that children with pyelonephritis have primary disorders of cellular immunity or interferonogenesis. Many researchers are recording a state of dysimmunoglobulinemia associated with a decrease in the number of T-lymphocytes, a decrease in their functional activity, as well as a decrease in the amount of IgA and an increase in IgG. In chronic pyelonephritis in children, the initial stage of phagocytic reaction, i.e., the adhesion of neutrophils, is significantly reduced. Insufficient phagocytic activity of leukocytes and incomplete phagocytosis are responsible for the chronic nature of the microbiological inflammatory process in the kidneys. Safina A.I. according to (2015), the violation of immune homeostasis in patients with pyelonephritis is associated not only with the course of the disease and the age of children, but also with the nature of the development of the disease, as well as the presence of concomitant intracellular and viral infections.

Of great importance in the development and during the inflammatory process in the kidneys is the presence of organic or functional disorders of Urodynamics. Malformations of the urinary system are diagnosed in more than half of children diagnosed with pyelonephritis. A special place is occupied by vesicoureteral

reflux as one of the causes of urodynamic disorders. The development of the process is also facilitated by the presence of dysplasia of kidney tissue. The role of functional urinary tract obstruction associated with neurogenic bladder dysfunctions is also becoming more and more evident. Metabolic disorders also contribute to the development of the microbiological inflammatory process in the kidney tissue and its chronic nature. Metabolic disorders in children with chronic pyelonephritis are diagnosed in 50-60% of cases.

In addition to the various pathogenetic concepts of pyelonephritis, there are also opinions on risk factors that affect its development and chronic nature. These factors create conditions for the development of the disease and increase the likelihood of getting sick. In a number of studies, risk factors for the occurrence of chronic pyelonephritis have been shown to include complications of pregnancy, occupational risks of the mother during pregnancy, and pathological conditions during the perinatal period. Under such conditions, there is a violation of the formation of organs of the urinary system in the fetus, as well as an early violation of the neurohumoral mechanisms that regulate the functioning of the urinary system. The main physiological function of the kidneys is to maintain homeostatic parameters of the body. When primary urine is formed in the vascular glomerulus, it includes all trace elements of blood plasma. Active reabsorption of mineral substances and water begins in the proximal tubes. In the early part of their tubes, the absorption of single-valence cations is an active process, and in the last of them-actively and passively. Absorption of bivalent cations is an active process. The anions, on the other hand, passively follow the cations. In Distal tubes, 10-20% of filtered cations are absorbed. The process of reabsorption of trace elements is under the control of the nervous and endocrine systems. When the tubes are damaged, the active and passive reabsorption of trace elements from the primary urine is disrupted, which leads to a decrease in their amount in the body. On the other hand, impaired mineral exchange contributes to the pathogenesis of kidney diseases and forms a kind of "Circle".

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