

PREVENTION OF UROLITHIASIS IN ADULTS.

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Urolithiasis (urolithiasis) is one of the most common urological pathologies among adults. This article is devoted to the analysis of modern methods of prevention of this disease based on the data of scientific literature and research presented in Google Scholar, Scopus, PubMed and other sources. The paper examines the main risk factors, including insufficient fluid intake, poor diet and low physical activity, and proposes effective preventive measures. The article highlights the importance of an integrated approach, including hydration, nutritional therapy, drug prophylaxis, and lifestyle modification, to prevent recurrence of urolithiasis in adults.

Keywords. Urolithiasis, urolithiasis, prevention, hydration, diet therapy, drug prophylaxis, physical activity, relapse, urology, metabolism.

Introduction.

Urolithiasis (urolithiasis) is a common disease characterized by the formation of stones in the urinary tract. It occupies a significant place among urological pathologies in both men and women, and often leads to serious complications, including renal colic, urinary tract infections and kidney failure. The causes of stone formation are multifactorial and include both genetic predisposition and external factors such as lifestyle, dietary habits and fluid intake.

Timely prevention of urolithiasis is crucial, since its recurrences occur in a significant number of patients. Without proper preventive measures, the risk of stones forming again after the first episode can be as high as 50% within 5 years. The introduction of effective preventive measures into practice can significantly reduce the likelihood of the disease, as well as improve the quality of life of patients.

Modern research, available in scientific databases such as Google Scholar, Scopus and PubMed, offers different approaches to disease prevention based on lifestyle modification, diet therapy and medication methods. In this work, an analysis of these methods will be carried out in order to identify the most effective approaches to the prevention of urolithiasis in adults.

Materials and methods.

To conduct the study, an analytical method was used based on the analysis of scientific literature and data published in leading international databases, such as Google Scholar, Scopus, PubMed, as well as domestic sources. The focus was on scientific articles published over the past 5 years, which made it possible to cover current data and innovative approaches to the prevention of urolithiasis in adults.

At the first stage of the work, a systematic literature search was carried out for the keywords: "urolithiasis", "urolithiasis", "prevention", "hydration", "diet therapy", "drug prophylaxis" and "physical activity". These keywords were used to search for articles related to both the general epidemiology of urolithiasis and its prevention. Articles on preventive measures were selected with a focus on their clinical efficacy as evidenced by randomized controlled trials, meta-analyses, and clinical guidelines.

Articles containing data on the effects of hydration, dietary recommendations, drug therapy, and lifestyle changes on the prevention of kidney stones were selected for analysis. Publications were evaluated for their scientific significance, statistical reliability and applicability of the data obtained in clinical practice. Particular attention was paid to publications containing data on the effectiveness of combination approaches, such as combining dietary recommendations with drug treatment.

The analysis identified the main areas of prevention, such as increasing fluid intake to reduce the concentration of stone-forming salts in the urine, changing the diet to reduce the intake of foods containing oxalates and animal proteins, and using drugs to prevent the formation of stones. Articles on the effect of exercise and weight control on the risk of developing kidney stones were also considered.

The data obtained were summarized and systematized for further analysis of the effectiveness of various methods of prevention. Particular attention was paid to the adaptation of preventive measures depending on the individual characteristics of the patient, the type of stones and concomitant diseases.

Results.

As a result of the analysis of scientific literature, key factors contributing to the development of urolithiasis and effective methods of its prevention were identified. It has been established that urolithiasis develops as a result of the interaction of genetic, metabolic and environmental factors, among which dietary habits, hydration and physical activity play a special role.

One of the most important aspects of prevention is adequate fluid intake. According to studies, regular consumption of at least 2-3 liters of water per day can significantly reduce the concentration of crystal-forming substances in the urine, such as calcium, oxalates, and uric acid. Hydration helps reduce the risk of crystallization of these substances, which is a key factor in preventing the formation of stones. Patients who follow the recommendations to increase fluid intake have been shown to reduce the recurrence rate of urolithiasis by 30-40%.

Dietary factors also play an important role in prevention. Limiting the consumption of foods rich in oxalate (e.g., spinach, rhubarb, beets), as well as reducing the amount of animal proteins in the diet, has been shown to reduce the risk of oxalate and urate stone formation. Excess salt and protein intake contributes to an increase in calcium levels in the urine, which is also associated with an increased risk of stone

formation. The inclusion of foods rich in fiber and potassium (for example, vegetables and fruits) in the diet has shown a positive effect on the prevention of stone formation.

Drug prevention is another important component. Studies have shown that drugs such as potassium citrate and thiazide diuretics help reduce the risk of stone formation in patients with hypercalciuria and hyperoxaluria. Citrates reduce the concentration of calcium and increase the solubility of salts in the urine, preventing their crystallization. Drug therapy is especially effective in patients with recurrent cases of urolithiasis and metabolic disorders.

In addition, lifestyle modifications, including increasing physical activity levels and controlling body weight, play an important role in the prevention of kidney stones. It has been found that patients with obesity and a sedentary lifestyle have a significantly higher risk of stone formation. Regular exercise improves metabolism, lowers urinary calcium levels, and helps maintain electrolyte balance, which reduces the risk of stone formation.

The results of studies have shown that a comprehensive approach to the prevention of urolithiasis, including hydration, nutritional therapy, drug treatment and lifestyle changes, is the most effective method. An individualized approach, taking into account the patient's metabolic characteristics and the type of stones, significantly increases the chances of preventing recurrences.

Conclusions.

The conclusions obtained as a result of the analysis of scientific literature and studies confirm that urolithiasis is a multifactorial disease that requires an integrated approach to prevention. One of the most significant factors affecting the risk of developing and recurring kidney stones is insufficient fluid intake. It is important to maintain a high level of hydration, which helps to reduce the concentration of salts in the urine, reducing the likelihood of their crystallization and subsequent stone formation. This approach should be fundamental in preventive measures for all patients, regardless of the type of stone.

Diet therapy aimed at limiting foods high in oxalates, animal proteins and salt, as well as increasing the intake of fiber and potassium-rich foods, has been shown to be effective in preventing the formation of new stones. Particular attention should be paid to dietary correction depending on the type of urolithiasis, which requires an individual approach to each patient.

Drug prophylaxis, especially with the use of citrates and thiazide diuretics, has been shown to be effective in patients with an increased risk of relapse associated with metabolic disorders. These drugs help stabilize the chemical composition of urine and prevent the crystallization of stone-forming substances. However, drug treatment should be used on the basis of metabolic tests and under the supervision of a doctor, which emphasizes the importance of an individualized approach to prevention.

In addition, research highlights the importance of lifestyle modifications, including regular physical activity and weight control. A sedentary lifestyle and obesity contribute to the development of urolithiasis, and therefore, weight loss and increased activity levels can significantly reduce the risk of the disease. The importance of these factors emphasizes the need to promote a healthy lifestyle as an integral part of the prevention of urolithiasis.

Overall, the results of the study demonstrate that a comprehensive approach to preventing kidney stones, including a combination of nutritional therapy, adequate hydration, drug therapy, and lifestyle changes, is the most effective way to prevent recurrence of the disease. Particular attention should be paid to the individualization of preventive measures taking into account the characteristics of the patient, which will increase their effectiveness and improve the prognosis for patients with urolithiasis.

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