

# ПРОФИЛАКТИКА И МЕТОФИЛАКТИКА МОЧЕКАМЕННОЙ БОЛЕЗНИ

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**Аннотация:** Мочекаменная болезнь или мочекаменно-каменная болезнь (МКБ) является полиэтиологическим, полипатогномичным метаболическим заболеванием, характеризующимся образованием камней в почках. Изучение профилактики и метафилактики МКБ имеет важное значение в прикладной медицине. Изучение факторов риска позволяет проанализировать все возможные факторы риска развития мочекаменной болезни, от генетики до питания. В данной статье освещается научная работа, проводимая в мире и ведущих научных организациях по диагностике, профилактике и метафилактике мочекаменной болезни

**Ключевые слова:** мочекаменная болезнь, уrolитиаз, заболеваемость, встречаемость, распространенность.

# SIYDIK-TOSH KASALLIGI PROFILAKTIKASI VA METAFILAKTIKASI

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**Annotatsiya:** Urolitioz yoki siydik-tosh kasalligi (STK) - buyrak toshlarining shakllanishi bilan tavsiflangan polietiolitik, polipatognomonik metabolik kasallik. STK profilaktikasi va metafilyaktikasini o'rganish amaliy tibbiyotda muhim ahamiyatga ega. Xavf omillarini o'rganish urolitioz rivojlanishining barcha mumkin bo'lgan xavf omillarini genetikadan oziq-ovqatgacha tahlil qilish imkonini beradi. Ushbu maqolada urolitiozni tashxislash, oldini olish va metafilyaktika bo'yicha dunyoda va yetakchi ilmiy tashkilotlarda olib borilayotgan ilmiy ishlar yoritilgan.

**Kalit so'zlar:** urolitioz, urolitiaz, kasallanish, paydo bo'lishi, tarqalishi.

# PREVENTION AND METAPHYLAXIS OF UROLITHIASIS

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**Annotation:** Urolithiasis or urinary-stone disease (USD) is a polyethiological, polypatognomonic metabolic disease characterized by the formation of kidney stones. The study of USD prophylaxis and metaphylaxis is important in applied medicine. The study of risk factors makes it possible to analyze all possible risk factors for the development of urolithiasis, from genetics to food. This article highlights the scientific work carried out in the world and leading scientific organizations on the diagnosis, prevention, and metaphylaxis of urolithiasis.

**Keywords:** urolithiasis, urolithiasis, morbidity, occurrence, prevalence, prevention, metaphylaxis.

**Introduction:** The problem of urolithiasis remains underestimated against the backdrop of such health problems as cancer or cardiovascular diseases. However, the prevalence of urolithiasis, its chronic nature with a recurrent course and the likelihood of developing chronic renal failure as an outcome of the disease, its impact on the patient's quality of life make the problem of early diagnosis, and "patient-oriented" metaphylaxis is one of the pressing health problems in the wider world sense and in particular in urology [1, 2, 3].

This problem is quite common all over the world, including Uzbekistan. The prevalence of USD in countries of the Eastern Hemisphere ranges from 1 to 5% [4]. The lifetime risk of urolithiasis is 2-5% for Asia, 8-15% for Western Europe, and 20% for Saudi Arabia [5, 6, 7, 8, 9, 10]. The relevance of urolithiasis in Uzbekistan is associated with several factors. Firstly, these are climatic conditions. High temperatures and hot, dry climates lead to dehydration of the body, which increases the likelihood of stones forming in the urinary tract. Secondly, the level of consumption of animal proteins and salt in the diet of the population of Uzbekistan may also increase the risk of urolithiasis. In addition, poor hydration and insufficient water intake increase the concentration of uric acid and crystals in the urine, which can also contribute to the formation of stones in the urinary tract. The third factor that increases the relevance of urolithiasis in Uzbekistan is the lack of information about the prevention and treatment of this disease. Many people are unaware of what measures need to be taken to prevent the formation of urinary tract stones and what treatments are available for those already experiencing this problem. In this regard, it is important to pay attention to the prevention of urolithiasis, including proper nutrition, increased fluid intake, regular urination, and an active lifestyle. In addition, it is important to promptly consult a doctor at the first signs of the disease to begin treatment and prevent complications. Despite the apparent simplicity of implementing such a program, in real practice the above preventive measures are difficult to implement, which is due to the insufficient number of medical workers, the presence of sparsely populated and inaccessible areas, and the lack of simple and cheap methods for the early diagnosis of urolithiasis. Therefore, the problem of diagnosing urolithiasis remains a pressing problem in Uzbekistan, and it is necessary to continue working to inform the population about measures for the prevention and treatment of this disease [11].

Adding to the difficulty is the fact that in Uzbekistan, as in other countries, different types of stones can form in the urinary tract, depending on the chemical composition of the urine. Since metaphylactic measures for different types of urolithiasis are different, it seems relevant to determine the specific type of metabolic disorder in a particular patient. Spectrometric stone analysis is not available to most patients. The following types of stones can form in Uzbekistan: Oxalate stones are the most common type of stones formed in the urinary tract. They are formed from calcium oxalate, which is found in plant foods such as spinach, rhubarb, chocolate, tea, and other foods [11]. Phosphate stones form from phosphates, which can be found in urine, especially at high pH levels. The diet of the population of Uzbekistan may also contain foods that contribute to the formation of phosphate stones, such as walnuts, pasta, rice, and others. Metaphylactic measures for oxalate and phosphate nephrolithiasis are directly opposite, so it is important to determine the specific type of nephrolithiasis before starting metaphylaxis. Urate stones are formed from salts of uric acid - urates, which can be contained in urine at high levels of acidity. Urates can be formed due to high consumption of meat products, as well as metabolic disorders. We did not include other, more rare forms of urolithiasis, such as cystine and xanthine stones, in this study due to their low prevalence compared to the above three types of nephrolithiasis. They are caused by hereditary metabolic defects.

The prevalence of one or another type of urolithiasis in Uzbekistan has not been fully studied. In patients suffering from urolithiasis, the relapse rate is 10–23% within 1 year, 50% within 5–10 years, and 75% within 20 years after the onset of the disease [12] Analysis of the prevalence of KSD in the Fergana Valley from 1991 to 2022 showed that over time there is a clear trend towards an increase in the number of cases of urolithiasis [11]. In the Fergana Valley in 1991, the total number of cases of USD was 4489; by 2022, this figure had increased significantly, that is, to 9825 (Fergana 4206, Andijan 3565, Namangan 2054, respectively). Statistics show that over the past years, the incidence has increased by 119%. The incidence of urolithiasis in the Fergana Valley with a diagnosis established for the first time in life was 142 in 1991; in 2022, 235 new cases of urolithiasis were registered, while in 2018 there were 248 cases. There is a clear trend towards an increase in the incidence of urolithiasis from 1991 to 2010.

From 1991 to 2018 the number of new cases of urolithiasis increased by 57.2% [11]. The recommendations of most urological associations indicate the need to conduct a 24-hour urine analysis and stone composition to recommend an individual diet and treatment in each specific case. Therefore, if signs of urolithiasis appear, it is necessary to consult a doctor to conduct the necessary examinations and determine the correct treatment. As already mentioned above, in remote areas of Uzbekistan, conducting such studies is difficult, which forces the development of simpler diagnostic tests, based on which one could judge one or another type of urolithiasis. An inexpensive and accessible alternative is the use of data obtained from a general urinalysis and microscopy of urine sediment, as well as the study of the patient's anamnestic data. Several studies indicate that the endoscopic picture of a stone may also have sufficient sensitivity and specificity in determining its composition. Similar studies have not been carried out in Uzbekistan either. Treatment of kidney stones in Uzbekistan depends on the type of stones, their size, quantity, and location of their formation. In most cases, the treatment of kidney stones in Uzbekistan includes the following methods - transurethral ureterolithotripsy and percutaneous nephrolitholapaxy in combination with extracorporeal lithotripsy. These methods can either remove the stones immediately or reduce the size of the stones to such a level that they can be passed naturally through urine. The minimally invasive nature of their use acutely raises the problem of the presence of residual fragments and brings to the fore the problem of the need for metaphylactic measures. Depending on the specific form of urolithiasis, the list of such measures should be different.

Considering that in most cases it is not possible to analyze the stone, it is necessary to develop a definition of the composition of the stone and a set of metaphylactic measures based on multifactorial analysis - microscopy of urine sediment, data from preoperative examination (CT, etc.) and endoscopic appearance of the stone. The data obtained can significantly improve the long-term results of using endourological treatment methods [13]. Open or laparoscopic equipment is used either to treat complicated forms of urolithiasis or to eliminate complications of endoscopic or extracorporeal lithotripsy. The frequency of use of these methods is sporadic. The influence of diet and lifestyle changes can hardly be overestimated when treating patients with urolithia-

sis. However, the development of methods for assessing patients' readiness to follow doctors' recommendations has not yet been carried out. It is also not known whether willingness to follow recommendations influences the development of recurrent stone formation. The most common recommendations for diet and lifestyle changes should depend on the type of stones and their chemical composition, but most often these recommendations include increasing the amount of water intake and limiting the consumption of foods that may contribute to the formation of stones, such as chocolate, spices, salty snacks, etc., as well as increasing the consumption of foods containing calcium, such as dairy products. To date, the impact of such recommendations on the long-term results of endourological treatment methods has not been studied. Urate stones are widespread in Uzbekistan and for this form of urolithiasis, effective drug treatment is possible, which reduces the level of urine acidity. The effectiveness of such treatment in Uzbekistan has not been fully studied. It also seems promising to evaluate the effectiveness of such therapy in combination with comprehensive lifestyle and diet changes. It also seems very promising to select patients for such therapy using questionnaires. Such questionnaires have not yet been developed. It is important to note that treatment of kidney stones in Uzbekistan should be carried out under the supervision of a qualified urologist, who will determine the optimal treatment method in each specific case. The lack of qualified medical personnel in primary care, and even more so in remote areas of the Fergana region, makes it necessary to develop a set of questionnaires for the diagnosis of primary and recurrent forms of urolithiasis. In addition to developing the questionnaires themselves, it is important to assess the significance of the results obtained on the results of diagnosis and treatment of urolithiasis, that is, to understand at what value of the sum of points in the questionnaire, the patient will need specialized urological care, which is of great socio-economic importance.

**Conclusions:** To date, despite the large number of publications on the above problems, these aspects of diagnosis, conservative, and surgical treatment of urolithiasis have not been fully studied. All of the above determines the relevance of the problem from a scientific and practical point of view and the need for a thorough study of it and the systematization of recommendations.

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