

## CURRENT STATE OF DIURETIC DRUGS

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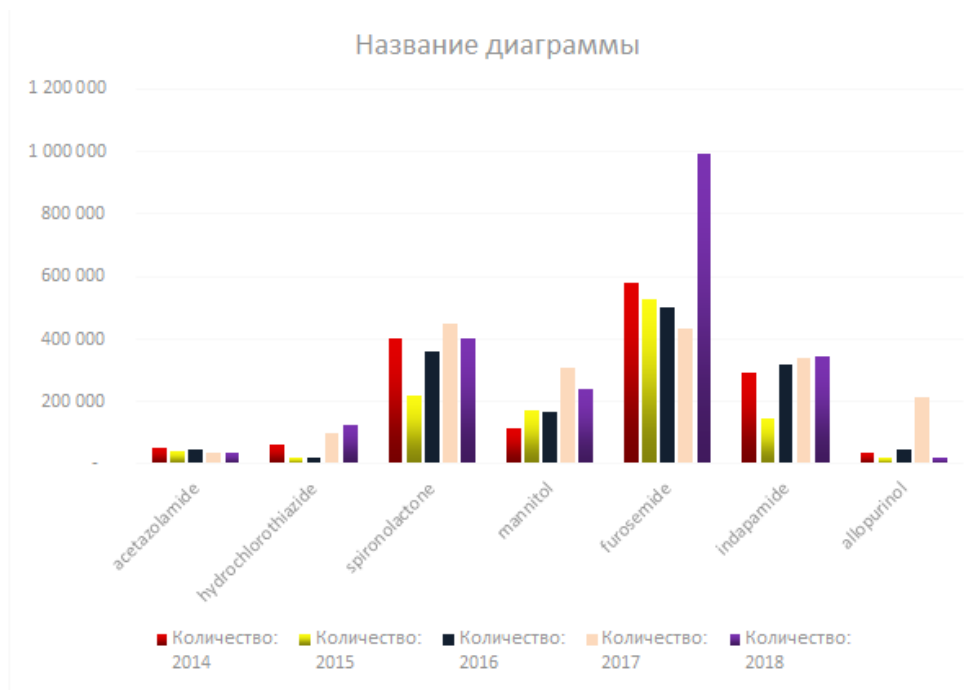
**Abstract:** *This article discusses the indications for the use of diuretics in modern use and their use in medicine.*

**Key words:** *diuretics, diuresis, method of administration, treatment of diseases of the urinary and reproductive system*

Diuretics (from the Greek διούρησις - urination; diuretics) are agents of various chemical structures that inhibit the reabsorption of water and salts in the kidney tubules and increase their excretion in the urine; increasing the rate of urine formation and, thus, reducing the fluid content in tissues and serous cavities. Diuretics are used mainly for arterial hypertension and for diseases of the cardiovascular system, liver and kidneys, accompanied by edema - but not for all diseases with edema, and only as prescribed by a doctor. The doctor prescribes them in the absence of contraindications for pathologies (especially chronic heart failure) in cases where the patient has a positive sodium balance (that is, the amount of sodium taken with food exceeds its excretion). The removal of sodium from the body is accompanied by a decrease in edema. Therefore, the most important are those diuretics that increase, first of all, natriuresis and chloruresis (saluretics - from the Latin name for table salt). This is a special herbal remedy that is used to treat a large number of pathologies of the genitourinary system. To treat diseases of the urinary and reproductive system, herbs are used that have effective medicinal properties. Diuretics can be used as first-line drugs, but at the same time it is recommended to use them in the lowest possible doses, especially in elderly patients. The increase in urination caused by diuretics is due to their specific effect on the kidneys, which consists primarily of inhibiting the reabsorption of sodium ions in the renal tubules, which is accompanied by a decrease in water reabsorption.

Having the general property of causing increased diuresis, they differ in their mechanism of action (including the ability to remove or retain potassium ions with the simultaneous removal of sodium ions), doses, methods of administration, indications and contraindications, adverse reactions and other properties. The range of ready-made diuretic drugs currently known on the world pharmaceutical market includes hundreds of items, and the biologically active compounds on the basis of which they are created are represented by dozens of chemicals of various structures. [1.2.]

According to statistics, about 10% of the population of Europe and 6.1% of the population of Uzbekistan have pathological changes in the organs of the urinary system. Moreover, any kidney disease can result in chronic renal failure over time.



**Fig.1.1 . The need for drugs of synthetic origin in the Republic of Uzbekistan for basic diuretics:**

- 1–diacarb; 2-ethacrynic acid; 3-dichlorothiazide; 4- spironolactone;  
5 – mannitol; 6 – furosemide; 7-indapamide; 8-allopurinol



**Rice. 12 . The need for herbal medicines in the Republic of Uzbekistan in basic diuretics:**

1-Canephron N tablets; 2-Uronefron tab; 3-Renolit caps; 4-Canephron N solution; 5-Spread out the table; 6-Nephronorm table; 7-Tutukon district; 8-Noston capsules; 9-Noston syrup; 10-Kidneys table; 11-Kidneys table; 12-Urolesan caps.; 13-Urolesan liquid; 14-Urolesan syrup; 15-Phytonephron drops.

For urological diseases, the following pharmacological groups of drugs are generally prescribed:

1. Antispasmodic drugs . They are divided into two groups: neurotropic and myotropic. The former are used to reduce pain due to failures in the transmission of nerve impulses to smooth muscles. Platiphylline is most often prescribed . Myotropic antispasmodics are used to relax muscle fibers. The most popular medicine - drotaverine .

1. Painkillers. Tablets of this group help relieve pain, for example, diclofenac or baralgin is prescribed.

2. Antibiotics. In most cases, doctors prescribe penicillin drugs, such as ampicillin. Antibiotics are prescribed for kidney inflammation cephalosporin group , for example, cephalexin . These drugs are effective for pyelonephritis. When the disease worsens, the doctor prescribes fluoroquinolone antibiotics , for example, ciprofloxacin.

3. Drugs that dissolve stones. To help dissolve kidney stones and reduce the risk of their formation, allopurinol, urodan and other drugs are prescribed.

4. Diuretics. For pyelonephritis and glomerulonephritis, hydrochlorothiazide is prescribed , furosemide and others.

5. Herbal uroantiseptics . Drugs in this group fight bacteria, reduce inflammation and have a mild diuretic effect. To them include canephron and urolesan .[ 1.2.]

The main groups of modern diuretics are presented in Table 1.1.

Table 1.1.

Main groups of diuretics.

|                             |   |  |
|-----------------------------|---|--|
| <u>Saluretics</u>           | Thiazide and thiazide-like drugs:<br><u>dichlorothiazide</u> ,<br><u>cyclomethiazide</u> ,<br><u>oxodoline</u> , etc. | Derivatives of <u>sulfamoylanthranilic</u> and <u>dichlorophenoxyacetic acids</u> ("loop diuretics"):<br><u>furosemide</u> , <u>pyretanide</u> , <u>bufenox</u> ,<br><u>clopamide</u> , <u>xipamide</u> , <u>indapamide</u> ,<br><u>ethacrine acid</u> |
|                             | Inhibitors carbonic anhydrase :<br><u>diacarb</u> , <u>derzolamide</u>  | Organic mercury compounds:<br><u>mercuzal</u> , <u>promeran</u> , <u>novorit</u> , etc.  |
| Potassium-sparing diuretics | Triamterene , <u>amiloride</u> , spironolactone   |  |
| Osmotic diuretics           | <u>Mannitol</u> , urea , potassium acetate  |  |
| Various diuretic facilities | Acid-forming diuretics :<br>ammonium chloride   | Extracts and infusions from plants used as diuretics and <u>antiazotemic agents</u>  |

The latter is due to the fact that synthetic diuretics, along with a high therapeutic effect, unfortunately have a number of side effects, as a result of which their use is limited, and in some cases, impossible. In particular, in the early 80s it became known that most modern synthetic diuretics are capable of causing nephrotoxicity under certain conditions. Such effects include the appearance of a drug-induced disease, morphologically characterized by the development of interstitial nephritis. A number of clinicians assign the leading role in the development of drug-induced nephritis to hyponatremia and hypovolemia, which develop as a result of the use of diuretics [3.4.5].

Statistical studies conducted in various countries in the first half of the 90s, based on significant factual material, showed that in individuals who took diuretics for a long time, the risk of renal cell carcinoma increases significantly.

In the manual L. Opie as relative contraindications to the use of diuretics, hyperlipidemia , prediabetes and diabetes, severe aortic stenosis, renal artery stenosis, sick sinus syndrome, etc. are indicated. Impotence, fatigue, cough, cold extremities, and hypotension are mentioned as side effects of diuretic therapy. When used systematically, mercury diuretics ( mercuzal , promeran , etc.) affect the cardiac muscle and tubular cells of the kidneys, thiazide and thiazide-like drugs lead to alkalosis and hypokalemia with severe consequences, and spironolactone , on the contrary, to hyperkalemia . Ethacrynic acid, with long-term use, can cause hepatitis, and sulfonamide diuretics can cause oliguria or anuria, preteinuria , hematuria, cylindruria , followed by a fairly rapid development of azotemia.

The data presented indicate that synthetic diuretics, having a high therapeutic effect, nevertheless, when systematically used, can become the cause of various dysfunctions and structures of the body as a result of undesirable side effects. In this regard, medicinal plants are of particular interest. They do not cause depletion of the glomerular apparatus of the kidneys, are low-toxic, their diuretic effect is not accompanied by significant excretion of potassium in the urine, so they have no significant contraindications. Resistance to them develops extremely rarely. The use of medicinal plants, especially in collections, simultaneously with treatment provides the body with additional various natural substances (vitamins, chemical elements, etc.). Medicinal plants can be used prophylactically for a long time without fear of any complications, which cannot be said about synthetic drugs. As can be seen from observations, the diuretic properties of plants eliminate stagnation of urine, enhance urination without irritating the renal epithelium. In addition, it has been established that at the same time the functioning of the gastrointestinal tract and sweat glands is improved, both mineral and acid-base metabolism is normalized, salts and small stones are removed from the kidneys and bladder. An improvement in blood circulation in the uterine appendages and prostate gland was also noted, the kidneys and urinary tract were disinfected.

The noted circumstances indicate the relevance of the development and implementation in medical practice of effective import-substituting diuretic preparations based on raw materials of local medicinal plants [3.4.5].

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