THE CHOOSING EXCIPIENTS COMPOSITION FOR TABLETS BASED ON MEDICINAL PLANTS FOR TREATMENT UROLITHIASIS

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Introduction. The problem of urolithiasis remains valid throughout the world. The problem of urolithiasis remains relevant worldwide, due to the high prevalence among the population, the severity and duration of the course of the disease and its complications, and the high rate of relapse of stone formation. The growth of the morbidity of the population is associated with changes in social and living conditions (stress, hypodynamia), environmental factors, quality of food, drinking water and other factors.

The incidence of the disease has a tendency to increase, which makes the problem of urolithiasis even more relevant. There is a tendency to increase this morbidity of the population of Ukraine in all age groups.

Urolithiasis occupies the second place in the structure of the disease for kidney and urinary tract diseases, and the fourth one - among the causes of disability due to urological pathology. Urolithiasis occurs on all continents and in all countries with a frequency of 10-30 cases per 1000 adult population and is 30-40% of all urological diseases. There is currently no single concept for the etiopathogenesis of urolithiasis, as its development is influenced by the state of many organs and systems of the organism, as well as poor socio-economic conditions, pollution of the environment, etc. In view of this, urolithiasis refers to the so-called diseases of civilization.

Among the risk factors for the formation of stones leading place is congenital enzymopathy (tubulopathy), defects of anatomical development of urinary tract, hereditary nephrotic and nephrite-like syndromes. The most common are the following enzymopathies: oxaluria, uraturia, generalized amination, cystinuria, galactosemia, fructosaemia.

At the heart of the formation of stones lie colloidal chemical and biochemical processes. Due to the inflammation of the bowl and the desquamation of the epithelium, the resulting organic material becomes the nucleus (matrix) of the formation of stones. According to the crystalloid theory, the supersaturation of urine with crystalloids in the amount passing through the limits of solubility, leads to their fall in the sediment and the formation of a stone.

Therefore it is necessary to need to increase alkaline reaction of blood and decrease inflammation in the joints. It is possible to do this with the help of herbal remedies.

Aim. Development of composition and technology of tablets based of medicinal plant raw material for the treatment and prevention of urolithiasis**.**

Materials and methods. We used pharmacotechnological methods, which are given in Statement pharmacopoeia of Ukraine. Flowability, angle of repose, bulk density, crushing, tablet hardness to abrasion, disintegration of tablets were determined.

Results and discussion. We conducted a brief analysis of the domestic market of drugs used for nephrology, in which case urolithiasis. At present, preparations in the form of medicinal raw materials and assemblies produce the most - about 35%, somewhat less in the form of tablets - 22%, in the form of liquid medicines (drops) -11%, further in the form of injectable solutions, and in soft medical forms.

The smallest proportion is observed in oral solutions, in capsules, in the form of effervescent tablets, as well as in other forms of medicine.

Herbal preparations make up about 70%, synthetic drugs about 20%, the share of combined drugs is 10%. The foregoing suggests that herbal preparations are quite popular among doctors and the population in the treatment of nephrology.

Thus, the given data once again confirm the expediency of the production of tablet drugs on the basis of medicinal plant material for the treatment of nephrology diseases, including urolithiasis.

On the basis of the researches of literary sources and received information on the application of herbal remedies for the treatment of urolithiasis, we proposed the following composition of the medicinal composition, which include Rosmarinus officinalis, Equisetum arvense, Levisticum

officinalis, Calendula officinalis.

The primary task in the development of the technological process is study the basic technological properties of the components of the medicinal form, among which special attention was paid to such technological parameters as fractional composition, flowability, angle of repose, bulk density, humidity.

From the aforementioned raw materials, powders were prepared by grinding, sifting them, mixing them in the appropriate proportion, and studying the technological parameters of the resulting mixture.

The mixture was unacceptable technological properties, low flowability of the intermittent nature of the currents, confirming too high angle of repose. The reason for this is also a high humidity index.

The low unacceptable properties of the mixture of powders required their correction, which was proposed by us to do with wet granulation. In this regard, we needed to select the necessary excipients, which would provide such important technological indicators as strength, ductility and disintegration of tablets. The first step in choosing auxiliary substances was the choice of a moisturizer. To this end, we wetted a mixture of powders with different moisturizers, such as corn starch solutions and methylcellulose solutions (at concentrations of 2, 3 and 5%), received a granulation mass, produced its tabletting and examined the technological characteristics of the resulting tablets. Increasing the concentration of any moisturizer helps to increase the strength of the tablets for erosion. We also see that a solution of corn starch even at a concentration of 4-5% does not provide the necessary resistance to abrasion.

The methylcellulose solution from the concentration of 1% showed a better result than a 1% starch potato starch.

A solution of 3% methylcellulose provided not quite the best, but rather high abrasion resistance, which was about 82%. And although the larger, but again not the best (85%) indicators of erosion (resistance to abrasion) had a solution of methylcellulose 5%, it was too thick for our mixture of powders, in addition to forming granulation mass that was difficult to granulate, we proposed the use of 5% solution of methyl cellulose.

The granulate has pleasant technological properties (good flow, low angle of natural slope), but the tablets obtained from it, have not only low erosion, but also low crushing strength. We adjusted these indices by adding such binder auxiliary substances as calcium phosphate dibasic and mannite. In both cases, the strength of these tablets is increased for erosion.

But the greatest ability to increase resistance to abrasion has mannite. It provided a high level of abrasion resistance from a concentration of 1.2%. At the same time, calcium phosphate dibasic did not provide this resistance to abrasion, even at a concentration of one percent.

At the same time, with a measure of erosion, we determined the strength of the tablets to be crushed. Were used the same substances.

The highest index of crushing strength was observed with the addition of mannite, which also provided a high-strength tablet (greater than 52H) of a concentration of 1.2% (Calcium phosphate dibasic provides the required strength only from the concentration of 1,1%). Therefore, the mannite was proposed by us as a binder.

We also conducted a quality control of the tablets. According to indicators such as the flowability of the tablet mass, its angle of repose, the humidity, and the strength of the tablets against crushing, the strength of the tablets on the fate, the races of their decay, we see that the weight for tabletting has high (pleasant) technological parameters, and the tablets for the given indicators meet the pharmacopoeial requirements.

Conclusions. In result of conducted researches the composition and technology of tablets on the basis of medicinal raw material for prophylaxis and treatment urolithiasis has been obtained.

Was found, that technological properties of tabletting mass and tablets from it corresponds to the requirements of State pharmacopoeia of Ukraine.