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THE RATIONALITY OF USING NOKAMEN IN A FAMILY PRACTICE DOCTOR

Summary. *General practitioners and family doctors most often face the problem of comorbidity of patients. Polypharmacy, as a consequence of polymorbidity, leads to an increase in the probability of systemic and undesirable effects due to drugs intake as a result the compliance between the doctor and the patient reduces. Kidney pathology is one of the common comorbid diseases. Urolithiasis takes the second place in prevalence, the third place in mortality and the fourth place in disability among urological diseases. The modern medicine must solve the problems of treating the patient by using drugs containing many components in order to simultaneously affect various links of the pathogenesis of the disease. One of such remedies on the Ukrainian market is the herbal-mineral complex Nokamen. The composition of Nokamen includes eight plant components and two minerals, which together produce a nephroprotective effect.*
Keywords: *family doctor; kidneys; urolithiasis; nephroprotection; prevention*

Modern Ukrainian medicine is undergoing rationalization changes. Today these changes have mostly affected primary care doctors - general practitioners and family doctors. General practitioners and family doctors most often face the problem of comorbidity of patients. A number of studies have shown that patients with chronic and comorbid diseases more often turn to primary care doctors, and the costs of their treatment constitute a significant amount both from the budget of the country in which the patients live and from the patient's own funds [1 - 3].

It has been established that in the USA more than 80% of insurance funds are spent on providing medical care to patients who have more than 4 diseases with a chronic course [4]. The study by H.S. Kim et al. has shown a correlation between a visit to a doctor and the appointment of treatment and the presence and number of concomitant diseases in patients who were diagnosed with diabetes. That is, the more comorbid diseases, the more visits to the doctor and the more prescribed drugs [5].

Polypharmacy is another problem faced by doctors and patients. Polypharmacy, as a consequence of polymorbidity, leads to an increase in the probability of systemic and undesirable effects due to drugs intake as a result the compliance between the doctor and the patient reduces [6, 7].

Among comorbid diseases, the most common are ischemic heart disease, dyscirculatory encephalopathy, arterial hypertension, chronic obstructive lung diseases, neoplastic processes, chronic gastritis with secretory insufficiency, chronic pyelonephritis, prostate adenoma, diabetes mellitus and spinal osteochondrosis, arthrosis.

Most of the listed diseases are systemic. They affect target organs, one of which is the kidneys. Treatment of kidney diseases is a long process, and drugs have side effects on other organs. It is expedient to use herbal preparations for the treatment of polymorbid patients.

According to the National Registry of the Netherlands, patients with such a threatening disease as diabetes mellitus also have a comorbid disease in 44% of cases [8]. It is well known that, in addition to comorbid diseases, patients with diabetes have problems with target organs. In our article, we will focus on the kidneys.

Even before the clinical symptoms occur, the presence of proteinuria and other changes in the analysis of urine indicate that kidney function is impaired. This is a stage when the therapy is needed to prevent kidney disease. If the clinical symptoms occur, a more severe course of the disease should be prevented. The study by R.G. Singh has shown a comparative analysis of the effectiveness of Punarnava, containing Boerhavia diffusa root and ACE inhibitor (ramipril), in patients with diabetic nephropathy [9].

Punarnava is a herbal Ayurvedic remedy. The product has an antiproteinuric effect and a number of other additional effects. It prevents the development of infection, and has antilytic, diuretic and renoprotective properties. All these effects are achieved with the help of the main component of the remedy, namely Boerhavia diffusa. This natural component contains a large amount of biologically active substances (flavonoids, alkaloids, steroid compounds, triterpenes, lipids, proteins, etc.), which exhibit antibacterial and hypoglycemic effects. Also they have anti-inflammatory, immunomodulatory and antispasmodic effects, and prevent the crystallization of calcium oxalates in urine. By reducing the level of protein in the urine, the product has a nephroprotective effect in disorders of carbohydrate metabolism.

The study by R.G. Singh involved patients with stage IV diabetic nephropathy. The study lasted six months. The patients were divided into two groups, the main group received Punarnava and ACE inhibitor, the comparison group received only ACE inhibitors.

The most common symptom in patients was a subjective feeling of weakness – in 60-90% of patients in both groups. Other common symptoms were anorexia, oedema, and vomiting. The main positive effect of the remedy containing Boerhavia diffusa, was an oedema reduction, which was observed in 28.57% of patients in the main group, while in the ramipril group, oedema reduction occurred in 14.28% of patients ($p < 0.05$). Therefore, it can be concluded that the remedy containing Boerhavia diffusa has diuretic properties in

this group of patients. In addition, the Indian Pharmacopeia classifies Punarnava as a diuretic and recommends it to patients who have problems with kidney function as monotherapy or in complex treatment [10].

Urolithiasis is another common disease faced by family doctors. Urolithiasis takes the second place in prevalence, the third place in mortality and the fourth place in disability among urological diseases. It should be noted that urolithiasis most often occurs in young people and has an acute course affecting the quality and lifestyle of the patient, significantly. It is well known that the threatening consequences of urolithiasis can and must be prevented. This can be done with the help of preparations containing herbal ingredients.

The properties of Dolichos biflorum as a litholytic agent are known. Thus, it has been found that the plant contributes to the dissolution of urinary stones formed by calcium oxalates. Dolichos biflorum is an annual plant with small leave. When the plant ripe it forms pods that have seeds inside. When analyzing the seeds of Dolichos biflorum, a number of substances were identified, in particular carotene, which is the international unit of measurement of vitamin A, and a very important enzyme – urease. At the same time, the seeds of Dolichos biflorum contain streptogenin, beta-sitosterol, phytohemagglutinin, beta-X-acetylglucosaminidase, α- and β-galactosidases, α-manosides and β-glycosides.

Studies show that patients with urolithiasis are more likely to have oxalate stones. In the United States of America, according to statistics, 75% of patients have oxalate stones. A similar trend is observed in Asian countries. Thus, the majority of patients also have oxalate stones in India [11]. Such a high incidence rate for oxalate stones is associated with the dietary habits of patients. A high intake of cereals such as millet and an animal proteins deficiency are one of the predictors of kidney stones disease with oxalate stones.

It should also be noted that this type of urolithiasis often has a relapsing course: 30% of patients may experience a new episode of urolithiasis in the next 10 years.

The study by R.G. Singh has found more significant litholytic properties of the preparation containing Dolichos biflorum compared to potassium citrate. The study lasted for 6 months; the patients were divided into two groups. The first group received the herbal preparation Dolichos biflorum, the second group – potassium citrate.

At the end of the study, a significant litholytic effect was found in the Dolichos biflorum group. Thus, a decrease in the size of stones was reported during 3 months of observation from 5.42 ± 1.55 mm to 4.26 ± 1.20 mm ($p<0.05$). Also in the first group, a decrease in the number of relapses of urolithiasis was found ($p<0.05$). However, despite the reduction in relapses, levels of serum calcium, phosphorus and uric acid, and urinary excretion of these substances did not differ between the two groups. Therefore, the preparation containing Dolichos biflorum can be used as a prophylactic agent to prevent relapses in patients with urolithiasis who turn to a family doctor.

Modern fashion trends in the diet of young people often involve the use of large amounts of protein supplements, which have a negative effect on the body in general and the kidneys in particular. The therapeutic effects of the alcoholic extract of Crataeva nurvula are known. At doses of 200, 400 and 600 mg, it is useful as a laxative and is used in the treatment of the urinary tract infections. At the same time, Crataeva nurvula extract is very useful as an anti-inflammatory agent for arthritis, and it effects on the female reproductive function as a contraceptive.

A study was carried out at the Charak College of Pharmacy and Research. The study has shown the effect of Crataeva nurvula on kidney function in cancer patients treated with cisplatin. Cisplatin is a potent antitumor agent, but its clinical use is limited by its toxic effects on the kidneys. The nephrotoxic effect of cisplatin includes increased renal generation of reactive oxygen metabolites and lipid peroxidation caused by a decrease in the level of antioxidants and antioxidant enzymes. In the course of the study, it was confirmed that Crataeva nurvula has a nephroprotective effect; in particular, Crataeva nurvula improves the function of nephrons, reducing the negative effect of the anticancer drug [12].

Another plant that affects kidney function is Butea frondosa. The study by Amit Gupta has found that Butea frondosa leaf aqueous extract has anti-inflammatory and antimicrobial properties. In addition, the plant itself has antioxidant and nephroprotective properties [13].

In our article, we have already mentioned the modern problem of polymorbidity and polypharmacy. Modern medicine must solve the problems of patient treatment with drugs containing many components with different medicinal properties. Considering this, it is possible to achieve a complex effect on various pathogenetic links of the disease. Nokamen is one of such remedies on the Ukrainian market. Together with the above plants, Nokamen contains ten natural components that give a nephroprotective effect.

Domestic studies indicate the effectiveness of Nokamen in patients with renal pathology. The article by E.A. Litvinets shows a comparative study of the effectiveness of Nokamen and the phytopreparation "Kidney" in women with exacerbation of chronic recurrent cystitis. According to the results of the study, it has been found that the use of Nokamen within 3 months after the treatment of the last episode of exacerbation of chronic cystitis significantly reduces the frequency of relapses compared to phytopreparation "Kidney". In the main group of patients taking Nokamen, exacerbation of chronic cystitis over the next 6 months was reported in 10.0% of patients, while in the comparison group taking phytopreparation "Kidney"- in 60.0% of patients. Therefore, Nokamen can be recommended for widespread use in order to prevent relapses of chronic cystitis [14].

A study of the effect of Nokamen on patients with urolithiasis with stones up to 55 mm in size has been carried out by V.P. Stus et al. A number of positive effects have been found. It has been found that Nokamen has a lithokinetic effect, which was manifested in the independent stones excretion in 12% of patients. Moreover, in several patients, the stones excreted imperceptibly. At the same time, Nokamen has bactericidal properties, for example, a decrease in bacteriuria from 22 to 12.5% ($p<0.05$) was reported in patients. In addition, it was confirmed that the plant components, included in Nokamen's composition, effect on the concentrations of calcium, uric acid in the blood and urine. Due to this fact Nokamen can be used as a remedy to prevent stone formation [15].

Therefore, based on domestic and international experience, Nokamen can be recommended to primary care physicians as a source of biologically active substances of natural origin, which has a positive effect on the functioning of the kidneys in conditions accompanied by the formation of stones and inflammatory processes in the kidneys and urinary tract.

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