

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



## **МАТЕРІАЛИ**

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its osmotic concentration and ionic composition. Therefore, any renal dysfunction can lead to significant changes in electrolyte and water-salt homeostasis. According to the literature, about 90% of kidney diseases are accompanied by fever, which often develops in response to the effects of pyrogens of viral or bacterial nature, which in general significantly impairs the body's compensatory capacity and affects the course and consequences.

**The aim of the study** was to research the effect of fever on the structural and functional state of kidney and possible mechanisms of renal dysfunction; the function of kidney during the first stage of fever, the renal mechanism of autoregulation – glomerular- tubular and tubular-tubular balance in the stage of temperature decrease.

**Material and methods.** Experiments on 30 male white nonlinear rats weighing 160-180 g. Aseptic fever was induced by a single intraperitoneal injection of pyrogenal at a dose of 25 µg/kg. The state of glomerular-tubular and tubular-tubular balance was assessed by correlation analysis between glomerular filtration processes, absolute, proximal, and distal reabsorption of sodium ions.

**Results.** In the first stage of fever (temperature rise), the administration of pyrogenal showed positive correlations between glomerular filtration and absolute ( $r=0.981$ ;  $p<0.001$ ) and proximal reabsorption of sodium ions ( $r=0.981$ ;  $p<0.001$ ). Absolute reabsorption of sodium ions correlated directly with its proximal reabsorption ( $r=0.999$ ;  $p<0.001$ ). The positive correlations indicate the functional ability of nephrocytes in the first stage of fever to maintain the mechanisms of glomerular-tubular balance. At the same time, there was a loss of correlation between diuresis and glomerular filtration ( $r=0.621$ ;  $p>0.05$ ), absolute and distal reabsorption of sodium ions ( $r=0.604$ ;  $p>0.05$ ), proximal and distal reabsorption of the studied cation ( $r=0.711$ ;  $p>0.05$ ) and between glomerular filtration and distal reabsorption of sodium ions ( $r = 0.642$ ;  $p>0.05$ ). Disruption of the relationship in the first stage of fever is explained by the ischemic effect of angiotensin II on the cortex of the kidneys was hypoxia with energy deficiency of the renal tubules. In this case, damage to the proximal nephron should have led to compensatory activation of the reabsorption of sodium ions in the distal part of the tubule by the tubular-tubular negative feedback mechanism.

However, in the conditions of pathology, inhibition of both proximal and distal transport of sodium ions was observed, probably due to the fact that reabsorption in the distal nephron is more energy-dependent due to high activity of succinate dehydrogenase and Na/K-ATPase. This explains the established new positive correlation between distal reabsorption of sodium ions and diuresis ( $r=0.981$ ;  $p<0.001$ ), as a significant decrease in distal reabsorption of sodium ions due to energy deficiency led to the fact that the part of the primary urine was practically not reabsorbed at introduction of pyrogenal and made actually volume of secondary urine with adequate loss of sodium ions.

**Conclusions.** During the first stage of fever, pathological changes contribute to the establishment of positive correlations of relative water reabsorption with glomerular filtration, absolute, proximal reabsorption of sodium ions, but a violation of negative correlations of relative water reabsorption with diuresis, and distal reabsorption.

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## **RESEARCH OF MEDICINAL PROPERTIES SAPONARIA OFFICINALIS**

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**Introduction.** The pharmaceutical industry, despite the large range of products, pays great attention to the study of plant raw materials, since phyto remedies are better absorbed by the human body and have practically no side effects. One of these plants is *Saponaria officinalis*, widely known in folk medicine and practically the first plant in which saponins were discovered. People call this plant dog soap, Tatar soap, stringer, soap root. It is most often recommended in traditional medicine for diseases of the urinary bladder, as a diaphoretic, expectorant, laxative, blood-cleansing and metabolism-improving agent, for diseases of the liver, kidneys, spleen, and jaundice. It is used externally for toothache, sore throat, runny nose, in the form of ointments or lotions - for ringworm, eczema and boils. Despite the wide range of uses of soapwort in folk medicine, it is practically not

used in traditional medicine, since its chemical composition has not been sufficiently studied. Therefore, the study of medicinal soapwort remains relevant.

**The aim of the research.** To conduct a study of the chemical composition of soapwort, which will provide an opportunity to expand the pharmacological activity.

**Materials and methods.** The objects for research were the grass and roots of the medicinal soapwort. The grass was harvested during the phase of mass flowering of the plant, and the roots - after the death of the above-ground part.

**Results.** According to the literature, the roots of soapwort contain steroidal and triterpene saponins, flavonoids, ascorbic acid, and carbohydrates. Alkaloids, ascorbic acid, flavonoids, vitexin are found in the leaves. It has been discovered that there are twelve fatty acids in the grass: palmitic, stearic, L-linoleic, arachinic, tricosanic, tetracosanic, caproic; dicarboxylic acids: tartaric acid, pyruvic acid, citric acid, oxalic acid, citric acid, succinic acid, malic acid, fumaric acid; twelve elements, total and free monosaccharides, phenolic acids. The composition of the roots includes 11 elements: sodium, potassium, calcium, magnesium, iron, copper, zinc, manganese, nickel, chromium, selenium, and the content is supplemented with fatty acids: nonadecanoic, pentadecanoic, stearic, linoleic, eicosanoic, behenic, lignoceric, phenolic acids. Ascorbic acid was also detected. It is planned to expand the study of the content of such biologically active substances as saponins and tannins, the presence of which is known but insufficiently studied.

**Conclusions.** Therefore, a more detailed study of the chemical composition of soapwort makes it possible to prospectively study medicinal forms from this plant as anti-inflammatory, antimicrobial and expectorant in medical practice.

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## **COMPARATIVE ANALYSIS OF INDICATORS OF THE TOTAL RISK OF ILLNESS AND DEATH FROM HODGKIN'S LYMPHOMA AND ITS FIVE-YEAR PREVALENCE IN UKRAINE AND POLAND**

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**Introduction.** Hodgkin's lymphoma (HL) is a severe disease that affects the most able-bodied population groups in society and has severe consequences for human health. In addition, considerable resources are spent on the treatment of patients with HL. All this determines the need to analyze the development of the epidemiological situation with HL.

**The aim of the research** was to conduct an analysis of indicators of the cumulative risk of getting sick and dying from HL, as well as its five-year prevalence in Ukraine and Poland.

**Materials and methods.** Indicators of the cumulative risk of getting sick and dying from HL, as well as the five-year prevalence of this pathology are presented on the official website of the WHO Global Cancer Observatory. The five-year prevalence rate was presented in the number of patients, as well as per 100,000 population in Ukraine and Poland. Comparative, mathematical and statistical and other research methods were applied.

**Results.** According to the results of the analysis, we have found that the overall risk of developing HL in Ukraine is 1.6 times higher than in Poland. So, in Ukraine it equals to 0.19, and in Poland - 0.12. In turn, the indicator of the cumulative risk of dying from HL in Ukraine (0.05) is 1.7 times higher than in Poland (0.03). According to the official website of the WHO Global Cancer Observatory, in 2020, the five-year prevalence of HL in Ukraine equaled 3,976 people, and in Poland 2,320 patients, which in terms of 9.09 and 6.13 people per 100,000 population. Thus, it can be stated that the relative indicator of five-year prevalence of HL in Ukraine was 1.5 times higher than according to the data presented in Poland. It has been proven that the specific weight (%) of patients with HL in the total number of oncology patients registered in 2020 in Ukraine was equal to 0.98%, and in Poland - 0.40%.

**Conclusions.** Comparing the data characterizing the epidemiological situation in both countries, it is possible to assert that its development is unfavorable in Ukraine. This issue requires