МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

М А Т Е Р І А Л И

105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
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Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

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У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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Table

The dynamics of sensitivity of selected strains of enterococci to vancomycin

Year	2018		2019		2020		2021		2022		2023	
	n	%	N	%	n	%	n	%	n	%	n	%
Vancomycin	12	92,3	44	86,4	75	24	78	50	79	29,1	50	90

n- the number of strains isolated from urine in an etiologically significant amount.

The sensitivity of enterococci to vancomycin in 2018 was high - 92.3 %, and from 2020 to 2022, the percentage of VRE decreased significantly. The difference when comparing the indicators for these years with the indicator for 2019 was statistically probable: 2019-2020 $t\varphi = 7.168$ ($p<0.001$); 2019-2021 $t\varphi = 4.319$ ($p<0.001$), 2019-2022 $t\varphi = 6.62$ ($p<0.001$). In 2023, 90 % of isolated strains of enterococci were sensitive to vancomycin. A sharp increase in the frequency of VRE, the causative agents of UTIs, in 2020-2022 was observed against the background of the pandemic caused by COVID-19. This allows us to make an assumption about the existence of a connection between these phenomena. A steady trend towards a decrease in the percentage of sensitive enterococcus strains of UTI to tetracycline from 2019 to 2023 was also revealed. Between the indicators of 2019 (42.9 %) and 2023 (17.2 %) the difference is significant $t\varphi = 2.27$ ($p<0.05$). No statistically significant differences in the sensitivity of selected strains of enterococci to most groups of antibiotics were found over the years of observation.

Conclusion. Therefore, the increase in the frequency of isolation of VRE - the causative agents of UTI in 2020-2021 is reliable and requires the attention of the health care system. The observed increase in vancomycin resistance coincides with the period of the COVID-19 pandemic, but the mechanism of this relationship is complex and requires further research.

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THE CYTOCHROME 11B2 ALDOSTERONE SYNTHASE GENE POLYMORPHISM DETERMINES ELEVATED ALDOSTERON, HIGHER BLOOD PRESSURE ESPECIALLY IN DIABETIC FEMALE PATIENTS

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Introduction. Arterial hypertension (AH) is one of the most common circulatory system diseases in Ukraine and the world. Early diagnosis of hypertension before damage to target organs (hypertrophy of the left ventricle, chronic kidney disease (CKD), vascular damage, etc.) is insufficiently effective. Therefore, the problem of early diagnosis of genetic, cardiometabolic and immunological factors in the formation of lesions of target organs due to hypertension, coronary heart disease, heart failure (HF), type 2 diabetes mellitus (T2DM) in the CVD continuum for the purpose of early secondary prevention is significantly relevant and needs further study.

The aim of the study. To determine the influence cytochrome *11B2* aldosterone synthase gene (*CYP11B2*) and that links to aldosterone synthase enzyme synthesis changes on blood pressure regulation is of a particular interest among the renin-angiotensin-aldosterone system encoding genes.

Material and methods. One hundred hypertensive patients with target organ damaging (2nd stage), moderate, high or very high cardiovascular risk were involved in the case-control study. Their average age was 59.87±8.02 years. Type 2 diabetes mellitus (DM2) was diagnosed in 28 persons. Chronic kidney disease (CKD) was diagnosed in 29 persons according to the National Kidney Foundation recommendations (2012) when glomerular filtration rate (GFR) declined <60 ml/min/1.73m2 for ≥3 months (measured by CKD-EPI equations). Aldosterone, cystatin-C, and creatinine levels were measured in serum. Control group included 48 practically healthy individuals of a relevant age. Gene's nucleotide polymorphism *CYP11B2* (-344C/T) was examined by polymerase chain reaction.

Results. CKD evolution in hypertensive patients followed by higher systolic and diastolic blood pressure (SBP, DBP), increased values of creatinine, cystatin-C, and aldosterone serum concentrations by 28.76 %, 28.41% and 29.43 % ($p<0.05$), respectively. Polymorphic site of *CYP11B2* (rs1799998) gene is associated with SBP and DBP increase ($p<0.05$), reduced GFR preferably calculated by CKD- EPI-cystatin C ($F=10.79–14.45$; $p<0.001$) and elevated aldosterone content ($F=55.84$; $p<0.001$), creatinine and cystatin-C as well ($F=4.16–5.08$; $p<0.05$) mainly in the *TT*-genotype female carri- ers ($p<0.001$). Hypertensive women with DM2 demonstrated stronger relations of *CYP11B2* gene polymorphic site with the increased aldosterone content ($F=47.52$; $p<0.001$), than women without DM2 ($p<0.001$) and male patients ($p=0.014$).

Conclusions. Genetic variations involving *CYP11B2* might influence the kidney function, hy-pertension course, and severity via aldosterone secretion upregulation.

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RADON ISSUE ON THE TERRITORY OF CHERNIVTSI REGION

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Introduction. Radon-222 is a radioactive gas formed as a result of the decay of radium-226. It is odorless, colorless, tasteless, has a half-life of 3.82 days and is a powerful alpha emitter. Upon decay, radon-222 produces short-lived decay products (DP), including polonium, bismuth, and lead. These, when attached to dust or moisture particles, form a radioactive aerosol.

The aim of the study is to analyze the correlation between respiratory organ malignancy and mortality rates in the Chernivtsi region and the influence of radon and its decay products on the human body.

Material and methods. Statistical reports from 2015-2016 were utilized to study the incidence of malignant neoplasms. Radon measurements were conducted using the radon radiometer RRA-01M-01.

Results. Radon in residential spaces poses a significant health risk. The respiratory organs and intact skin serve as entry points for radon into the human body. Radon readily dissolves in blood, water, fats and other bodily fluids. Inhaling air containing radon and its decay products leads to their accumulation in delicate structures of the respiratory organs, primarily in the bronchial epithelium, causing prolonged irradiation. Substantial doses can result in lung cancer, and radon exposure is also linked to blood system disorders and the development of different types of leukemia.

Chernivtsi region is located within two powerful tectonic structures (the East European Platform and the Carpathian Geosynclinal Region), where manifestations of tectonic activity are consistently recorded. This activity creates faults, serving as natural sources of radon and its decay products in the air.

In 2015, 581 measurements of equivalent equilibrium volume activity (EEVA) of radon in indoor air were conducted, and in 2016, the number was 314. The minimum EEVA value was 14 Bq/m³, and the maximum was 130 Bq/m³.

Analyzing the morbidity structure by disease classes reveals a predominance of respiratory organ diseases in Chernivtsi region (33.4%). Specifically, the morbidity for malignant neoplasms of the respiratory organs (trachea, bronchi, lungs) per 100,000 population was 25.4, with a mortality rate of 26.6 in 2015 and 25.4 and 24.6, respectively, in 2016.

Conclusions. Therefore, assessing health risks for the population of Chernivtsi region related to radon and its decay products requires a comprehensive approach by hygiene and medical professionals and the implementation of preventive anti-radon measures.