

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



## **МАТЕРІАЛИ**

**105-ї підсумкової науково-практичної конференції  
з міжнародною участю  
професорсько-викладацького персоналу  
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ  
присвяченої 80-річчю БДМУ  
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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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## **DISEASES OF FRONTLINE SOLDIERS**

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**Introduction.** Ukrainian frontline soldiers perform tasks in difficult conditions, which often leads to the deterioration of their health.

Frontline soldiers mostly suffer from diseases related to the skin, musculoskeletal system, gastrointestinal tract, cardiovascular system, lungs and teeth. Active hostilities limit access to hygiene products, cause frostbite or overheat in the sun.

**The aim of the study.** Identify and deal with the main difficulties affecting the health of frontline soldiers.

**Materials and methods.** One of the main ailments of the Ukrainian servicemen is trench foot. During this disease, a person's leg looks like a washing machine's hands.

This condition occurs when the foot is in a very wet and cold environment (temperature 0-16°C) for a long period of time (more than 10-16 hours) without basic hygiene. Uncomfortable shoes and lack of changeable socks contribute to the problem.

In the case of illness, the patient's skin is damaged, so its protective function decreases. This can later lead to wound formation, infectious lesions and poor healing.

**Results.** In such cases, you should not apply an antiseptic to the wound itself, so as not to cause chemical burns. It is also unnecessary to use ointments, creams, chalk, tooth powder, toothpaste and other folk methods. This can damage the skin and lead to complications. In addition, heating with hot water, an open object or other means is prohibited to avoid the possibility of burns.

In addition, a common ailment among the servicemen is problems with the spine - lumboischialgia. This is the definition of a disease where the spine is affected by wearing body armor and battle kits.

Due to the lack of normal access to food and a large amount of energy drinks, a common problem of fighters is gastritis. Problems with the gastrointestinal tract are exacerbated by the use of medications, including painkillers, which are far from uncommon at the front.

After returning from the battlefield, many soldiers are diagnosed with acute bronchitis of various clinical manifestations and severity. Persistent cough is the most prominent symptom.

The cause of this condition is smoking, respiratory infections, dust, various aggressive chemical factors that arise from the combustion of gunpowder, explosives, phosphorus or other chemicals.

After the war, the number of lung cancer cases in our country might increase. Destruction of houses built in the 50s and 60s, when asbestos was widely used for insulation, spoil the air, water and soil in places of intense fighting.

Hypertension is often the problem. The soldiers had never referred with this problem to a doctor before, but the disease began to progress at the front. If you do not deal with pressure correction, do not pay attention to all these problems, then the disease may progress and lead to hypertensive disease.

**Conclusions.** Frontline soldiers face a number of problems with fungus, herpes, ingrown toenails, calluses, and they are prone to infections. All this is related to the lack of proper hygiene in the conditions of hostilities and the general usual conditions of a person's life.

**Humenna A.V.**

## **EFFECT OF NAPHTHYLMETHYL PHOSPHONIUM CHLORIDES ON ANTIBACTERIAL AND ANTIFUNGAL ACTIVITY**

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**Introduction.** After the use of antibiotics and antiseptic drugs, there is a selection and spread of resistant strains of microorganisms, which are widely used for the treatment of infectious diseases. New safe and effective drugs are constantly being introduced into clinical practice.

**The aim of the study** was to conduct a search for highly active antimicrobial drugs among a number of new phosphonium compounds.

**Materials and methods.** The antimicrobial activity of naphthylmethyl phosphonium chlorides was studied using the micromethod using disposable polystyrene tablets and Takachi microtitrators in relation to 6 reference strains of gram-positive and gram-negative microorganisms.

**Results.** Our preliminary results of studying the antimicrobial and antifungal activity of naphthylmethyl phosphonium chlorides showed that they have high antimicrobial activity. The research was conducted on clinical strains of microorganisms.

Table

Antimicrobial activity of naphthylmethylphosphonium chlorides ( $\mu\text{g/ml}$ )

| Test-culture                     | Compound I | Compound II |
|----------------------------------|------------|-------------|
| <i>S. aureus</i> 209             | 1,95       | 1,95        |
| <i>M. luteus</i> ATCC 3941       | 3,9        | 3,9         |
| <i>Y. pseudotuberculosis</i> 623 | 62,5       | 125         |
| <i>Y. enterocolitica</i> 1466    | 125        | 62,5        |
| <i>H. alru</i> 3168              | 125        | 62,5        |
| <i>E. coli</i> O <sub>55</sub>   | 125        | 125         |

Note: MIC: minimum inhibitory concentration; MB<sub>c</sub>C: minimum bactericidal concentration

The studied substances have high antimicrobial activity against gram-positive microorganisms (*S. aureus* 209, *M. luteus* ATCC 3941). Thus, their minimum inhibitory concentrations against *S. aureus* 209 are within 1,95 – 3,9  $\mu\text{g/ml}$ ; *M. luteus* ATCC 3941 - 0,975 – 3,9  $\mu\text{g/ml}$ . Gram-negative microorganisms were moderately sensitive (*Y. pseudotuberculosis* 623, *Y. enterocolitica* 1466, *E. coli* O<sub>55</sub>), the minimum inhibitory concentrations ranged from 62,5 to 250  $\mu\text{g/ml}$ .

**Conclusion.** Therefore, naphthylmethylphosphonium chlorides have high antimicrobial activity against gram-positive microorganisms (*S. aureus* 209, *M. luteus* ATCC 3941) and moderate against gram-negative microorganisms. It is reasonable to continue studying their antimicrobial activity in relation to antifungal drugs.

Iftoda O.M.

## MICRONUTRIENTS AS COMPONENTS OF NON-SPECIFIC IMMUNOPROPHYLAXIS

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**Introduction.** Under conditions of economic instability, the structure of the population's nutrition undergoes significant changes in the direction of increasing the imbalance of the main components of the diet, which negatively affects the state of the body's defenses and increases the susceptibility to seasonal viral diseases. Therefore, during the period of increased incidence of colds, flu, SARS and COVID-19, it is important to support the immune system by obtaining the necessary nutrients in optimal quantities.

**The aim of the study.** To analyze the influence of certain micronutrients in the diet on the stimulation of the body's immune response.

**Material and methods.** A review and analysis of foreign sources of scientific and medical literature was carried out (Lim H., 2018; Alexander J, 2020; Joliffe D., 2020; Grant W., 2020; Calder P., 2020; Wessels I., 2020; Sies H., 2021; Skrajnowska D., 2021; Saikat M., 2022) using bibliosemantic and analytical research methods.

**Results.** As evidenced by numerous clinical studies, vitamins C and D, as well as trace elements zinc and selenium, can favorably stimulate the immune response in case of exposure to viral infectious agents.

The main mechanism of the anti-infective activity of vitamin D is its ability to induce the formation of  $\beta$ -defensins and cathelicidin in macrophages, neutrophils and epithelial cells, which cause the death of microorganisms in autophagosomes. Vitamin D is also able to suppress