O‘ZBEKISTON HARBIY

2025-YIL, 4-SON
(NOYABR)

ILMIY

«O‘zbekiston Harbiy Tibbiyoti» илмий-амалий журнали Ўзбекистон Республикаси Олий таълим, Фан ва инновациялар вазирлиги ҳузуридаги Олий аттестация комиссиясининг 2023 йил 29 августдаги № 01-07/1410/33 сонли маълумотномасига асосан, тиббиёт фанлари буйича диссертациялар асосий илмий натижаларини чоп этиш тавсия этилган миллий илмий нашрлар рўйҳатига киритилган.

Муассис:
ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ҚУРОЛЛИ КУЧЛАРИ ҲАРБИЙ ТИББИЁТ АКАДЕМИЯСИ

Бош муҳаррир:
ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ҲАРБИЙ ХАВФСИЗЛИК ВА МУДОФАА УНИВЕРСИТЕТИНИНГ ҲАРБИЙ ТИББИЁТ АКАДЕМИЯСИ БОШЛИҒИ У.РАСУЛОВ

Масъул котиб:
Т.ф.д., Нагаева Г.А.

Ўзбекистон ҳарбий тиббиёти илмий-амалий журнали Ўзбекистон Республикаси Президенти Администрацияси ҳузуридаги Ахборот ва оммавий коммуникациялар агентлигида 2022 йил 5 августдаги 1691-сонли гувоҳнома билан рўйхатга олинган.

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Журнал 20.11.2025 йилда босмахонага топширилди.

Қоғоз бичими 60x84 1/8.
Офсет усулида босилди.
Шартли 6,75 босма табоқ.
“Ўзбекистон Республикаси Ҳарбий тиббиёт акадаемияси”нинг босмахонасида чоп

Дунёдаги қуруқликнинг 6-7% майдони ўлат касаллиги бўйича табиий ўчоқли ҳудудлар ҳисобланади. ЖССТ маълумотларига кўра 2015-2024 йй.да дунёнинг 10 давлатларида 4898 та одам ўлат касаллиги билан касалланган. Улардан ўлганлар сони 478 киши (9,8%).

Хозирги кунда ўлат касаллиги бўйича эндемик давлатлар Мадагаскар, Перу, Конго демократик республикаси, Хитой, АҚШ, Монголия ҳисобланади.

Эндемик ҳудудларда эпидемиологик назоратнинг қониқарли ўтказилмаслиги натижасида эпидемиологик вазиятнинг кескинлашувига яққол мисол сифатида 2017-2018йй. Мадагаскарда ўлат касаллиги эпидемиясини келтириш мумкин. Ўлатнинг ўпка ва бубон шакллари Мадагаскар давлатининг 55 та (48%) туманида қайд этилган.

2018 - 2024 йилга қадар касалланганлар сони -22671 нафарни ташкил етиб, ўлим ҳолатлари эса 239 тани ташкил этган.

Ўлат касаллигиниинг биринчи пандемияси VI асрда кузатилган бўлиб уни “Юстиниан ўлати”деб аталган. Бу касаллик Миср, Европа, Марказий ва Жанубий Осиёда кузатилиб, бунда 100 миллиондан кўпроқ одамлар ўлган.

Иккинчи пандемия – 1333-1369 йилларда кузатилган бўлиб буни -”Қора ўлим” деб номланган. Бу пандемия Европанинг шарқидан ғарбигича, жанубидан шимолигача тарқалган, Европанинг учдан бир аҳолисининг ўлимига сабабчи бўлган. Касалликнинг спорадик авж олишлари бир неча асрларгача давом етган.

Учинчи пандемияси 1894 йили Гонконгдан бошланиб, Осиё, Европа ва Шимолий Американинг бир неча шаҳарлари ва 87 та портларига тарқалган бўлиб, 10 йилдан узоқроқ давом етган. Бу пандемияда 12 млндан кўпроқ одамлар вафот етган.

Юқоридагилардан келиб чиқиб, ҳозирги вақтда йилдан-йилга авиаташувлар сонининг мунтазам ошиб бораётганлиги, аҳолининг миграцияси, глобал иқлим ўзгаришлари, чўллашув жараёнларининг кучаяётганлиги, ўлат касаллиги устидан эпизоотологик ва эпидемиологик назоратни такомиллаштириш, тиббиёт ходимларида ҳушёрликни ошириш, соҳага ахборот технологияларини кенг жалб этиш, табиий ўчоқларда яшаётган аҳолини хабардорлик даражасини ошириш долзарб ҳисобланади.

INFORMATION ABOUT THE TYPES OF FACTORS POLLUTING ATMOSPHERIC AIR THE DURATION OF THEIR IMPACT ON THE HUMAN BODY

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Abstract: *Atmospheric pollution, or air pollution, occurs when harmful or excessive amounts of substances, including gases (such as carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, methane, and chlorofluorocarbons), particles, and biological molecules, enter the Earth's atmosphere. This can cause illness, allergies, and even death in humans. It can also harm other living organisms, such as animals and plants, and can damage the Earth's natural or artificial ecosystems. Air pollution can be caused by both human activity and natural processes.*

Keywords: *Carbon monoxide, sulfur dioxide, nitrogen oxides, methane and chlorofluorocarbons, dust, particulate matter, various types of electromagnetic waves, including radio waves, radioactive radiation and isotopes.*

Аннотация: *Загрязнение атмосферы, или воздуха, происходит, когда вредные или чрезмерные количества веществ, включая газы (такие как углекислый газ, монооксид углерода, диоксид серы, оксиды азота, метан и хлорфторуглероды), частицы и биологические молекулы, попадают в атмосферу Земли. Это может вызвать болезни, аллергии и даже смерть у людей. Это также может нанести вред другим живым*

организмам, таким как животные и растения, и нанести ущерб естественным или искусственным экосистемам Земли. Загрязнение воздуха может быть вызвано как деятельностью человека, так и природными процессами.

Ключевые слова: *Монооксид углерода, диоксид серы, оксиды азота, метан и хлорфторуглероды, пыль, твердые частицы, различные типы электромагнитных волн, включая радиоволны, радиоактивное излучение и изотопы.*

Atmospheric pollution, or air pollution[3], occurs when harmful or excessive amounts of substances, including gases (such as carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, methane, and chlorofluorocarbons), particles (both organic and inorganic), and biological molecules, enter the Earth's atmosphere. This can cause illness, allergies, and even death in humans. It can also harm other living organisms, such as animals and plants, and can damage the Earth's natural or artificial ecosystems (environments). Air pollution can be caused by both human activity and natural processes[2,8].

"Cleaning the air we breathe prevents noncommunicable diseases and reduces the risk of illness among women and vulnerable groups, including children and the elderly." "Poor women and children pay a high price for indoor air pollution as they spend more time indoors breathing smoke and fumes from leaky coal and wood stoves."

The aim of this study. Indoor air pollution and poor urban air quality are among the two most serious toxic pollution problems in the world, according to the Blacksmith Institute's 2008 World's Worst Polluted Places report.[4] According to a 2014 World Health Organization report, air pollution caused about 7 million deaths worldwide in 2012,[3] roughly in line with the International Energy Agency's estimate.[5][6] Outdoor air pollution alone is estimated to cause between 2.1[7][8] and 4.21 million premature deaths annually,[3][9] in 2013, and over 4.5 million[5] in 2024. Short-term spikes in fine particulate matter (PM2.5) are estimated to cause over a million premature deaths globally annually by 2024.[1] According to scientists at the University of Texas at Austin (USA), global air pollution shortens human life expectancy by an average of one year. This is primarily due to the construction of factories and various modes of transport[2]

By type of air pollution:

Physical pollution includes mechanical pollution (dust, particulate matter), radioactive pollution (radioactive radiation and isotopes), electromagnetic pollution (various types of electromagnetic waves, including radio waves), noise pollution (various loud sounds and low-frequency vibrations), and thermal pollution (e.g., warm air emissions, etc.).

Chemical pollution includes pollution by gaseous substances and aerosols. Today, the main chemical pollutants in the atmosphere include carbon monoxide (IV), nitrogen oxides, sulfur dioxide, hydrocarbons, aldehydes, heavy metals (Pb, Cu, Zn, Cd, Cr), ammonia, dust, and radioactive isotopes[3,5].

Study Material and Method. Biological pollution includes pollution primarily of a microbial nature. For example, air pollution by vegetative forms, bacterial and fungal spores, viruses, as well as their toxins and waste products.

The main sources of atmospheric pollution are:

Natural (natural pollutants of mineral, plant, or microbiological origin, including volcanic eruptions, forest and steppe fires, dust, plant pollen, animal excrement, the greenhouse effect, etc.)

Artificial (anthropogenic) pollutants can be divided into several groups:

Transport pollutants – pollutants generated by road, rail, air, sea, and river transport;

Industrial pollutants – pollutants generated as emissions during industrial processes, heating, and construction[3];

Household pollutants – pollutants caused by fuel combustion in homes and the processing of household waste.

By composition, anthropogenic sources of air pollution can also be divided into several groups:

Mechanical pollutants – dust from cement factories, dust from coal combustion in boilers, furnaces, and ovens, soot from the combustion of oil and fuel oil, worn tires, etc., capable of entering into chemical reactions;

Radioactive pollutants. Some pollutants are the result of human activity (e.g., nitrogen oxides), others are purely natural (radon), but many pollutants have both natural and anthropogenic origins. Furthermore, humans actively influence natural sources. For example, agriculture pollutes the environment not only with nitrogen oxides due to the use of fertilizers, but also with methane emitted by livestock during digestion[15].

Major pollutants: Carbon dioxide (CO2)—or carbon dioxide—is a colorless gas with a sour odor and taste, a product of the complete oxidation of carbon. It is a gas essential for photosynthesis, which is the main source of free oxygen on Earth. In low concentrations, it is harmless; at elevated concentrations in the air, due to its effects on air-breathing organisms, it is classified as an asphyxiant gas. Total CO2 emissions in 2024 were 41.6 billion tons, of which 37.4 billion tons were from the combustion of fossil fuels[12].

Carbon monoxide (CO) is a colorless, odorless gas, also known as carbon monoxide. It is formed as a result of the incomplete combustion of fossil fuels (coal, gas, oil) under conditions of oxygen deficiency and at low temperatures. When inhaled, carbon monoxide, due to the double bond in its molecule, forms strong complex compounds with hemoglobin in human blood, thereby blocking the flow of oxygen into the blood.

Sulfur dioxide (SO2) (sulfur dioxide, sulfur dioxide) is formed during the combustion of sulfur-containing fossil fuels, primarily coal, and during the processing of sulfur ores. It is involved in the formation of acid rain. Global SO2 emissions in 2022 were estimated at 73 million tons per year; emissions peaked in 1979-80, when they reached 140 million tons annually.[12] Long-term exposure to sulfur dioxide initially leads to loss of taste, difficulty breathing, and then to inflammation or pulmonary edema, irregular heartbeats, circulatory problems, and respiratory arrest.

Nitrogen oxides (nitrogen oxide and nitrogen dioxide) are gaseous substances: nitrogen monoxide (NO) and nitrogen dioxide (NO2) share the general formula NOx. All combustion processes produce nitrogen oxides, primarily in the form of oxide. The higher the combustion temperature, the more intense the formation of nitrogen oxides[3,8].

Results and discussion. Another source of nitrogen oxides are industries producing nitrogen fertilizers, nitric acid and nitrates, aniline dyes, and nitro compounds. The amount of nitrogen oxides emitted into the atmosphere is 65 million tons per year. Of the total amount of nitrogen oxides emitted into the atmosphere, transport accounts for 55%, the energy sector for 28%, industrial enterprises for 14%, and small consumers and the household sector for 3%[5,9].

Ozone (O3) is a gas with a characteristic odor and a more powerful oxidizer than oxygen. It is considered one of the most toxic of all common air pollutants. In the lower atmosphere, ozone is formed as a result of photochemical processes involving nitrogen dioxide and volatile organic compounds.

Hydrocarbons are chemical compounds of carbon and hydrogen. These include thousands of different air pollutants found in unburned gasoline, dry cleaning fluids, industrial solvents, and so on.

Lead (Pb) is a silvery-gray metal that is toxic in any known form. It is widely used in the production of paints, ammunition, printing alloy, and other materials. Approximately 60% of global lead production is used annually in the production of lead-acid batteries. However, the main source (approximately 80%) of lead-based air pollution is the exhaust gases from vehicles that use leaded gasoline.

Pollutants also include chlorofluorocarbons[11] (gases emitted by air conditioners, freezers, aerosol sprays,

etc.), persistent organic pollutants[14] (organic compounds resistant to decomposition), polyaromatic hydrocarbons[13] (a group of aromatic compounds formed during the incomplete combustion of organic compounds, including coal, oil, and tobacco), and microplastics[15].

Industrial dusts are divided into the following 4 classes depending on the mechanism of their formation:

mechanical dust - formed as a result of product grinding during the technological process;

sublimates - formed as a result of volumetric condensation of vapors of substances during the cooling of gas passed through a technological apparatus, plant, or unit;

fly ash - an uncombustible residue of fuel suspended in the flue gas, formed from its mineral impurities during combustion;

Industrial soot is a highly dispersed solid carbon component of industrial emissions, formed during the incomplete combustion or thermal decomposition of hydrocarbons.

The main sources of anthropogenic aerosol air pollution are coal-fired power plants. Coal combustion, cement production, and iron smelting contribute a total of 170 million tons of dust to the atmosphere annually[3,7].

In 2022, air pollution was responsible for one in eight deaths worldwide. Pollution was a significant risk factor for a number of pollution-related diseases, including respiratory infections, heart disease, COPD, stroke, and lung cancer.[3] Health effects caused by air pollution can include difficulty breathing, wheezing, coughing, asthma, and worsening of existing respiratory and heart conditions. These effects can lead to increased use of medications, visits to the doctor or emergency department, more hospitalizations, and premature death. The health impacts of poor air quality are wide-ranging, but primarily affect the respiratory and cardiovascular systems. Individual responses to air pollutants depend on the type of pollutant to which a person is exposed, the degree of exposure, and the person's health and genetics[3]. Prenatal exposure to air pollution affects the development of the nervous system in children[4.] The most common sources of air pollution are particulate matter, ozone, nitrogen dioxide, and sulfur dioxide. Children under five years of age living in developing countries are the most vulnerable population in terms of overall mortality associated with indoor and outdoor air pollution[5].

According to World Health Organization estimates published in 2023, air pollution caused approximately 7 million premature deaths worldwide in 2022.[3] Research published in March 2021 suggested that the number may be as high as 8.8 million[9].

India currently has the highest death rate due to air pollution.[27] India also has more asthma deaths than any other country, according to the World Health Organization. In December 2022, air pollution was estimated to be killing 500,000 people annually in China[9]. There is a strong correlation between pneumonia mortality and air pollution from vehicle emissions[13].

Europe experiences between 430,000[11] and 800,000 premature deaths annually due to air pollution.A significant cause of these deaths is nitrogen dioxide (NO_2) and other nitrogen oxides (NO_x) emitted by road vehicles. In a 2015 consultation document, the UK government revealed that nitrogen dioxide causes 23,500 premature deaths in the UK each year.

Various air pollution control technologies and strategies exist to reduce air pollution.[33][34] At the most basic level, land-use planning can include zoning and transport infrastructure planning. In most developed countries, land-use planning is an important part of social policy, ensuring the efficient use of land for the benefit of the economy and the population as a whole, as well as for the protection of the environment[2].

To effectively combat this, principles of sustainable development, architecture, ecological design, and green building are essential.[35][36] Waste management, the development of eco-friendly transport, infrastructure that reduces the use of polluting vehicles, improved fuel efficiency,

and the development of remote working are also necessary[3,8].

Since a large proportion of air pollution is caused by the combustion of fossil fuels such as coal and oil, reducing the use of these fuels can significantly reduce air pollution. The most effective way to reduce air pollution is by switching to clean energy sources such as wind, solar, and hydropower, which do not cause air pollution[3,9].

A very effective way to reduce air pollution is by switching to renewable energy. According to a 2022 study published in the journal Energy and Environmental Science, a complete transition to clean and renewable energy in the 50 US states would, in addition to saving approximately $600 billion in healthcare costs per year (about 3.6% of the 2021 US gross domestic product), also avoid approximately 62,000 premature deaths in the year of the study and approximately 42,000 in 2050[4,13]

To combat air pollution and reduce carbon dioxide emissions, many countries signed the Kyoto Protocol in 1997[10] Also in the context of combating air pollution, the UN 2030 Agenda for Sustainable Development and the Paris Climate Agreement were adopted in 2015. In 2019, the EU adopted a strategy for greening and decarbonizing the economies of its member states—the European Green Deal—and in 2021, a comprehensive climate package, Fit for 55, including a proposal to introduce a Carbon Border Adjustment Mechanism (CBAM)[14]

Conclusion. The risk of air pollution depends on the hazard of the pollutant and the impact of that pollutant. The impact of air pollution can be expressed for an individual, for specific groups (e.g., residents of specific neighborhoods or children living in a country), or for the entire population. For example, one can calculate exposure to a hazardous air pollutant for a geographic area that includes different microenvironments and age groups. This can be calculated as inhalation exposure[3].

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ХАРАКТЕРИСТИКА ГЕМАТОЛОГИЧЕСКИХ И ИММУНОЛОГИЧЕСКИХ ПОКАЗАТЕЛЕЙ У ВОЕННОСЛУЖАЩИХ БОЛЬНЫХ С ПОСТКОВИДНЫМ ДЕРМАТИТОМ

ЭРГАШЕВ З.А., НУРАЛИЕВА Д.М.

Аннотация: *В работе представлены результаты комплексного анализа гематологических и иммунологических показателей у военнослужащих с постковидным дерматитом. Проведено сравнение с контрольной группой практически здоровых лиц. Установлено повышение уровня системного воспалительного ответа, изменения в соотношении лимфоцитов, нейтрофилов и моноцитов, а также выявлена значимая корреляция между уровнем витамина D и показателями воспаления. Полученные данные свидетельствуют о нарушении иммунного гомеостаза и формировании хронического воспалительного процесса [2,5].*

Ключевые слова: *постковидный дерматит, гематологические показатели, иммунологические показатели, системное воспаление, витамин D, военнослужащие.*

Аннотация: *Ushbu ishda postkovid dermatit bilan kasallangan harbiy xizmatchilarda gematologik va immunologik ko‘rsatkichlarning kompleks tahlili keltirilgan. Sog‘lom nazorat guruhi bilan taqqoslash amalga oshirildi. Tadqiqot natijalariga ko‘ra, tizimli yallig‘lanish javobining oshishi, limfotsitlar, neyrofil va monotsitlar nisbatida o‘zgarishlar kuzatildi. Shuningdek, D vitamini darajasi va yallig‘lanish ko‘rsatkichlari o‘rtasida sezilarli korrelyatsiya aniqlandi. Olingan natijalar immunogomeostaz buzilishi va surunkali yallig‘lanish jarayonining shakllanishidan dalolat beradi[2,5].*

Kalit so‘zlar: *postkovid dermatit, gematologik ko‘rsatkichlar, immunologik ko‘rsatkichlar, tizimli yallig‘lanish, D vitamini, harbiy xizmatchilar.*

Abstract:*This study presents the results of a comprehensive analysis of hematological and immunological parameters in military personnel with post-COVID dermatitis. A comparison was made with a control group of practically healthy individuals. The findings revealed an increased systemic inflammatory response, alterations in the ratio of lymphocytes, neutrophils, and monocytes, as well as a significant correlation between vitamin D levels and inflammatory*

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