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INFLUENCE OF SPECIFIC FEATURES OF ECOLOGICAL THE INDUSTRIAL ZONE OF ZAPORIZHZHYA REGION ON THE PREVALENCE OF PSORIASIS

Resume. *The researches of domestic and foreign authors testify to the negative consequences for the population's health due to the quality of the environment, namely, health is considered as a criterion for the quality of the environment and the effectiveness of environmental measures. 43% of the water samples of the Dnieper in the Zaporozhye region show the presence of salmonella and cholera vibrios. Dnieper water contains a lot of mutagenic substances.*

Topicality. *Significant materials indicate changes in the levels and structure of the incidence of the population in ecologically disadvantaged areas such as Zaporozhye, including a 2–4-fold increase in the frequency of visits to medical institutions for respiratory, circulatory, skin and subcutaneous tissue diseases.*

Objective – *to study the features of environmental problems in industrial Zaporozhye and predict the danger to public health in certain conditions.*

Methods. *Hygienic studies of the ecological and hygienic situation (in the Zaporozhye region and the city) were conducted in the following areas: quality control of drinking water and water supply of the population; study of the state of atmospheric air in residential buildings, in the zone of influence of industrial enterprises and major highways; soil quality research in the residential area; conducting sanitary-epidemiological assessment of their hygienic significance and sanitary-epidemiological level.*

Results. *In the river waters near Zaporozhye there are 2.4 maximum permissible standards of nitrates, in 4–5 times the presence of feces is exceeded, in 4–4.5 times the maximum permissible standards of petroleum products are exceeded. During 2013, laboratories of the Sanitary and Epidemiological Service of Zaporozhye Oblast conducted 13 345 atmospheric air surveys (in 2012 – 18 447), 4.22% exceeded the maximum permissible concentrations (in 2012, these exceedances were 5.66%).*

Conclusions. *The ecological and hygienic situation in Zaporozhye is regarded as tense, which is due to the deterioration of the quality of atmospheric air, drinking water, the soil of populated areas, the quality and nutritional value of the population, the social living conditions.*

Keywords: *ecological and hygienic situation, environmental problems, industry, social conditions.*

Introduction. Zaporozhye closes the five largest industrial centers of Ukraine in terms of industrial capacity. Along with the powerful enterprises of the ferrous metallurgy (Zaporizhstal, Dneprospetsstal), Zaporozhye has the largest non-ferrous metallurgy enterprises (Zaporozhye Titanium and Magnesium Plant, Dneprovsky Aluminum Plant), chemical industry enterprises (Kremnopolymer, artificial leather), machine building enterprises, AvtoZAZ, a motor-building plant (FV Stolberg and others, 2004). Favorable influence on the ecological situation of Zaporozhye is provided by an abundance of green spaces and water spaces. Zaporozhye is ranked 13th in the list of the most disadvantaged Ukrainian cities. In the area of Zaporozhye on the Dnieper the largest hydroelectric power station of the Dnieper cascade of Dniipro HPP was built. The Dnieper in the territory of Zaporozhye is very polluted. Enterprises discharge sewage without proper pre-treatment. The

volume of untreated water discharged to the Dnieper increased from 816,000 tons in 1988 to 1,062,000 tons in 1994. From 1991 to 1993, the amount of zinc, copper, iron, magnesium, cadmium, nickel and lead in the waters of the Dnieper has increased by 50%. On the territory of Zaporozhye, Dneprovskaya water has the highest content of heavy metals. An increase in the percentage of chlorine used for water purification led to an increase in carcinogenic substances in it. The waters of the Dnieper have lost their natural ability to self-purification. Zaporozhye region – the only one in Ukraine takes drinking water from the Dnieper. Water enters badly cleaned apartments containing heavy metals and radionuclides, that is unsuitable not only for drinking, but also for cooking. Purification of drinking water with chlorine, too, has become a big problem, since chlorine reacts with the pesticide residues contained in the water. As a result, hazardous substances are

formed. The incidence of hepatitis “A”, the virus of which is constantly present in drinking water, took the epidemic dimensions in Zaporozhye. Flooding of territories caused by water filtration in the side of the reservoir violates the stability of buildings and structures, floods and destroys underground communications, can cause landslide phenomena. The largest environmentally hazardous facility in the Zaporozhye region is a nuclear power plant located in Energodar, 50 kilometers from the regional center. It entered service in 1985 and is the largest in Europe. At the end of 1997, Zaporozhye NPP accounted for 33% of all electricity produced by Ukraine’s nuclear power plants (GO Bilyavsky, 2004).

Objective – to study the features of environmental problems in industrial Zaporozhye and predict the danger to public health in certain conditions.

Methods. Hygienic studies of the ecological and hygienic situation (in the Zaporizhya Oblast and the city) identified dysfunctional territories. The study of the state of environmental objects was carried out in the following areas: drinking water quality control and the state of water supply of the population; the study of the state of atmospheric air in residential buildings in the zone of influence of industrial enterprises and major highways; study of soil quality in the residential area; conducting sanitary and epidemiological surveillance of communal facilities with an assessment of their hygienic significance and the level of sanitary and epidemiological well-being; organization of a system for monitoring environmental factors and public health within the framework of socio-hygienic monitoring. To disadvantaged areas, in the first place, are attributed to the zones of influence of large industrial enterprises and vehicles. At present, the methods of analytical epidemiologists and non-infectious diseases (“epidemiology of risk factors”) are widely used, which aim not only to quantify the risk of disease development, but also to identify the factors affecting its level in the specific conditions in which the life and activity of the population are taking place. To analyze the dependence of public health on habitat factors, two complementary approaches are used: environmental and epidemiological studies and risk assessment. Ecological and epidemiological studies are based on a retrospective linkage of those violations of population health that can already be identified,

with the action of specific harmful factors or their complex. The prerequisites for carrying out ecological and epidemiological studies are usually: the presence in the environment of a factor or factors, the harmful effect of which on the human body is expected from the data of experiments on animals or other populations; the results of a risk assessment predicting a danger to public health under certain conditions.

Detection of cases in people exposed to such a factor or factors, but at substantially higher levels (eg, occupational diseases); the detection in a particular population of a large number of cases of rare diseases, high rates of morbidity (mortality) or the prevalence of conventional diseases from materials of descriptive epidemiology or from random observations [1, 2]. Risk factors are factors of any nature that, under certain conditions, are capable of provoking or increasing the risk of occurrence or development of deviations in the state of human health. Risk assessment is a multi-step process aimed at identifying or forecasting the likelihood of adverse health effects of harmful substances that pollute the habitat or production environment [3].

Risk assessment is based on a variety of information about the level of pollution, the toxic properties of the substance, its migration and transformation in the environment, ways of influencing the person, the characteristics of the exposed human population. In a narrower sense, we mean the special methodology of “risk assessment” developed by the US EPA and recommended by international organizations (WHO, UNEP).

The advantages of this methodology include the possibility of placing sanitary and environmental ills that develop on a particular territory not only by comparing the observed or calculated levels of its technogenic pollution with acceptable but also in the expected adverse health response of the population, the decrease of which is regarded as the goal of the recommended managers Efficiency and can be evaluated in accordance with the most important criteria for their effectiveness [4].

The method of analyzing time series in the conduct of environmental and epidemiological studies in recent years has been increasingly used. Most effectively, this method can be used to analyze the connection between short-term exposure diseases (which are practically possible only with respect to atmospheric pollution) and rapidly advancing

short-term responses (such as increased mortality, emergency medical attention, and exacerbation of diseases) [5].

Results. During 2013, laboratories of the Sanitary and Epidemiological Service of Zaporizhzhya Oblast conducted 13 345 atmospheric air surveys (in 2012 – 18 447), 4.22% exceeded the maximum permissible concentrations (in 2012, these exceedances were 5.66%). As can be seen, within the framework of socio-hygienic monitoring, 263 – 17.9% did not meet the regulatory indicators (in 2012 – 657 – 19.1%). The most polluted air in 2013 was in Ordzhonikidzevsky district of Zaporozhye – 33% of the total number of excesses, Zavodskoy – 12% and Shevchenko – 10% of the city districts. As in previous years, atmospheric pollution in Oktyabrsky, Leninsky, Khortitsky and Kommunarovsky areas was lower than the average city index. At the same time, significant pollution of atmospheric air in Zaporozhye remains due to phenol compounds 43.8% (in 2011 – 68.9%), carbon disulfide 58.3% (in 2011 – 53.3%) and hydrogen sulfide 50.6% (in 2011 – 28.3%). A number of studies by domestic and foreign authors show negative consequences in the health of the population due to environmental quality, namely health is considered as a criterion for the quality of the habitat and the effectiveness of environmental measures [6]. 43% of the samples

of Dnipro water in the Zaporozhye region show the presence of salmonella and cholera vibrio. The waters of the Dnieper contain many mutagenic substances. According to the data published in 1991, in the river waters near Zaporozhye there are 2.4 maximum permissible standards of nitrates, 4–5 times the presence of feces, 4–4.5 times the maximum permissible standards of petroleum products.

Discussion. Studies were carried out to assess the health risks of the population from the effects of atmospheric chemicals in the large industrial centers of Ukrainian cities. The results of the research showed the presence of regional features of the ecological and hygienic situation and the need for each region, taking into account the multifactorial effects of chemicals, to evaluate their complex effect on the body [7, 8].

Conclusions. The ecological and hygienic situation in Zaporozhye is regarded as tense, which is due to the deterioration of the quality of atmospheric air, drinking water, the soil of populated areas, the quality and nutritional value of the population, the social living conditions [9]. Ecological problems adversely affect the health and social conditions of city residents. Thus, Zaporozhye is an industrial giant with all its inherent environmental problems.

References

1. Avetikyan S.S. Especially the clays, the transfer of the terapii psoriasis in choloviks / S.S. Avetikyan // Author's abstract. dis. Cand. honey. Sciences: 14.00.11.2008. – 23 p.
2. Adaskevich V.P. Діагностичні індекси в дерматології / V.P. Adaskevich / *Medichnakhniga*, 2004. – 165 p.
3. Bakulev A.L., Shagova Yu.V., Kozlova I.V. Psoriasis yak sistemna pathologia / A.L. Bakulev, Yu.V. Shagova, I.B. Kozlova // *News of the Saratov Medica University*, 2008, No. 8, p. 13–20.
4. Batkayev E.A., Abramova T.V. Prior to feeding on pathogenetic mehanizmi proliferative processes in psoriasis / E.A. Batkayev, T.B. Abramova // *News of the Ministry of Education and Science*, p. 56–58.
5. Bergstrom K.G. Псориаз / K.G. Bergstrom // *Practice*, 2007, 152 p.
6. Vladimirov V.V., Vladimirova E.B. Psoriasis: etiopathogenesis, cellulitis, likuvannya ta profilaktika. Якість життя / B.B. Vladimirov, E.V. Vladimirova // *Hvorobi shkiri*, 2006, No. 6 (17), p. 47–49.
7. Gerasimov O.M. Medical statistics / O.M. Gerasimov, 2007, 480 p.
8. Golubchikov M.V. Indicators of medical and preventive care we speak on the shkirmi ta venerechnyi zahshovorvanya in Ukraini / M.V. Golubchikov // *Center for Medical Statistics of the Ministry of Health of Ukraine*. Kyiv, 2009, 110 p.
9. Grebnyak M.P., Grishchenko S.V., Agarkov V.I. Preventive medical ecology / M.P. Grebnyak, S.V. Grischenko, V.I. Agarkov // *Dnipropetrovsk: Pogory*, 2013, 196 p.

ВПЛИВ СПЕЦИФІЧНИХ ОСОБЛИВОСТЕЙ ЕКОЛОГІЧНОЇ ПРОМИСЛОВОЇ ЗОНИ ЗАПОРІЗЬКОЇ ОБЛАСТІ ЩОДО ПОШИРЕНОСТІ ПСОРИАЗУ

І.А. Соколовська, Г.І. Макуріна, П.А. Петренко, Н.М. Калашникова

Резюме. Дослідження вітчизняних та зарубіжних авторів свідчать про негативні наслідки для здоров'я населення через якість навколишнього середовища, а саме здоров'я розглядається як критерій якості середовища

існування та ефективності природоохоронних заходів. 43% зразків води Дніпра в Запорізькій області демонструють наявність сальмонел і холерних вібрионів. Вода Дніпра містить багато мутагенних речовин.

Актуальність роботи. Псоріаз у всіх його клінічних формах є одним із найбільш поширених хронічних запальних захворювань шкіри. Для більшості пацієнтів захворювання означає багаторічні обмеження в різних аспектах повсякденного життя з величезними персональними витратами, а іноді і з тяжкою стигматизацією та дискримінацією.

Мета дослідження – вивчення впливу довкілля на розповсюдженість псоріазу у Запорізькій області на основі оцінки його ризиків.

Об'єкт дослідження – вплив екологічних факторів на розповсюдженість псоріазу.

Методи дослідження – гігієнічні, епідеміологічні та статистичні, клініко-лабораторні, функціональні.

Отримані результати та їх новизна. Встановлено зв'язок між екологічними чинниками та розповсюдженістю псоріазу серед мешканців м. Запоріжжя. Вперше обґрунтовано гігієнічну та нозологічну діагностику псоріазу.

Результати досліджень можуть бути застосовані для здійснення клініко-гігієнічного моніторингу серед населення індустріального міста, а також цілеспрямованої роботи серед хворих на псоріаз.

Ключові слова: еколого-гігієнічна ситуація, екологічні проблеми, промисловість, соціальні умови.

ВЛИЯНИЕ СПЕЦИФИЧЕСКИХ ОСОБЕННОСТЕЙ ЭКОЛОГИЧЕСКОЙ СРЕДЫ ПРОМЫШЛЕННОЙ ЗОНЫ В ЗАПОРОВЖСКОМ РЕГИОНЕ НА РАСПРОСТРАНЕНИЕ ПСОРИАЗА

И.А. Соколовская, Г.И. Макурина, А.А. Петренко, Н.Н. Калашникова

Резюме. Исследования отечественных и зарубежных авторов свидетельствуют о негативных последствиях для здоровья населения из-за качества окружающей среды, а именно здоровье рассматривается как критерий качества среды обитания и эффективности природоохранных мероприятий. 43% образцов воды Днепра в Запорожской области демонстрируют наличие сальмонелл и холерных вибрионов. Вода Днепра содержит много мутагенных веществ.

Актуальность работы. Псориаз во всех его клинических формах является одним из наиболее распространенных хронических воспалительных заболеваний кожи. Для большинства пациентов заболевание означает многолетние ограничения в различных аспектах повседневной жизни с огромными персональными затратами, а иногда и с тяжелой стигматизацией и дискриминацией.

Цель исследования – изучение влияния окружающей среды на распространенность псориаза в Запорожской области на основе оценки его рисков.

Объект исследования – влияние экологических факторов на распространенность псориаза.

Методы исследования – гигиенические, эпидемиологические и статистические, клиничко-лабораторные, функциональные.

Полученные результаты и их новизна. Установлена связь между экологическими факторами и распространенностью псориаза среди жителей г. Запорожье. Впервые обоснована гигиеническая и нозологическая диагностика псориаза.

Результаты исследований могут быть применены для осуществления клиничко-гигиенического мониторинга среди населения индустриального города, а также целенаправленной работы среди больных псориазом.

Ключевые слова: эколого-гигиеническая ситуация, экологические проблемы, промышленность, социальные условия.

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