

ACHIEVEMENTS AND PROSPECTS OF FURTHER RESEARCH ON PREVENTION OF OCCUPATIONAL CANCER IN UKRAINE

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Introduction. Occupational cancer is an actual problem of occupational health. Reforms of the national healthcare and work safety systems in Ukraine create a need to identify strategies for further research on occupational cancer.

The purpose of the work was to summarize the results of studies of the Institute for Occupational Health (IOH) of the National Academy of Medical Sciences of Ukraine and to elaborate a strategy of further studies in preventing occupational cancer in Ukraine.

Materials and methods. Generalization of the results obtained in studies performed in the IOH within 2004–2016.

Results. A number of scientific studies were conducted in Ukraine within 2004–2016 in order: to initiate identification, registration and monitoring of occupational cancer; to identify carcinogenic hazards; to make risk assessment on morbidity of occupational cancer in the priority sectors of the economic activity of the country and in the selected cancer-hazardous industries (asbestos-cement, asphalt-bitumen, coke, rubber, machine building, iron and steel metallurgy, uranium mining, in the health care system, etc.); to investigate etiology and pathogenesis of occupational lung, pleural and skin cancer; to obtain additional data on cancer pathogenesis in exposures to silicon dioxide dust, ultraviolet radiation, and so on. At the present stage of developing there are existing some gaps in prevention of occupational cancer in Ukraine, which are associated with systemic problems in the country administration, resulting from restructuring and reformation of the government organs. Due to the limited funding and a significant decrease in the science personnel potential it is important to identify applied scientific studies as priority ones, directed at implementation of international recommendations in the sphere of occupational cancer prevention in Ukraine.

Key words: occupational cancer, prevention, research

Introduction

Occupational cancer – a group of malignant neoplasm, etiology of which is associated mainly with a long-term exposure to carcinogens and agents on humans at workplace (when performing their professional duties) [3, 4]. In the Convention of the International Labor Organization (ILO) № 121 «Assistance in cases of occupational injuries» occupational cancer is considered as a separate category among occupational diseases.

The first clinical description of occupational cancer was made by Percival Pott in 1775 in his article «Supervision of scrotal cancer in London chimney sweeps» [2]. Up today, the problem of occupational cancer remains to be one of the most complicated and poorly studied problems of occupational health. The reason of this is in the polyetiologic character of occupational cancer. Often there is recorded a combined and united action of chemical and biological factors as well as the mode of life, genetic predisposition, etc. [5]. The assessment of present and future burden of occupational diseases shows that occupational cancer

still remains a challenge and will remain to be so in future as a result of exposure of workers to carcinogens [1, 6].

In recent years, great changes have occurred in Ukraine in the system of the sanitary and epidemiological supervision and in work safety, thus requiring a need for generalization of scientific studies and determination of strategies to further research.

The purpose of the work was to summarize the results of studies of the Institute for Occupational Health (IOH) of the National Academy of Medical Sciences of Ukraine and to elaborate a strategy of further studies in preventing occupational cancer in Ukraine.

Materials and methods

There was summarized the results of studies, conducted in the Institute for Occupational Health (IOH) of the National Academy of Medical Sciences of Ukraine within 2004–2016.

Results and discussion

Results of scientific research for the period of 2004–2016. Systemic studies on prevention of occupational cancer started in IOH in 2004.

A research on the risk assessment and on the system of registration of occupational cancer in workers of cancer-hazardous enterprises was conducted in IOH within 2004–2009 in the Department of epidemiology research.

During that period:

- a method for studying cancer morbidity among workers of the cancer-hazardous enterprises with the use of the information technology «data linkage» (including the data of the National Cancer Registry of the National Cancer Institute of the Ministry of Health of Ukraine) has been implemented;
- a long-term program on epidemiological monitoring of workers of selected cancer hazardous industries has been started (asbestos cement, asphalt and bitumen, coke, rubber, engineering, steel, uranium-extractive);
- the first cancer register of patients with occupational cancer has been developed, covering such patients since 1992;
- a system on prevention of occupational cancer at the national level has been scientifically grounded.

In 2009, a special scientific laboratory on «Cancer hazard and prevention of occupational cancer», was organized in IOH, where a number of research studies and works on dissertations, covering problems of occupational cancer and cancer-related issues, were conducted, such as:

- further studying the epidemiology and clinical peculiarities of occupational cancer, based on registration of occupational cancer patients in Ukraine;
- studying carcinogenic hazards and risks in the various sectors of the economic activity;
- evaluating carcinogenic risks to workers, exposed to selected agents: metal-containing acid azodyes (riazolans); dioxin silicon (crystal); chrysotile asbestos; natural (solar) radiation; ionizing radiation, etc;
- investigating the work-related cancer of bronchi and lungs and its etiological relation on pneumoconiosis;
- studying the connection of malignant mesothelioma with asbestos exposure;
- study of carcinogenic hazard and cancer morbidity in health care workers;

- research of not-carcinogenic factors on increasing the risk of occupational cancer development: HIV, tuberculosis, lifestyle and health status of workers, etc);
- scientific substantiation of measures, directed at preventing occupational cancer in selected sectors of the economic activity under the influence of specific carcinogenic agents, and others (Table).

The above mentioned was used as the basis for ratification of the ILO Convention № 139 by Ukraine (Law of Ukraine of 10.03.2010 № 1956-VI on the Control the hazard, caused by carcinogenic substances and agents in work conditions and measures of prevention).

The strategy on further research in occupational cancer. The current strategy on prevention of occupational cancer in Ukraine is based on the provisions of the ILO Convention № 139 and the ILO Recommendations № 147 as well as on the provisions of the resolutions of the World Health Assembly (WHA), such as: «Cancer Prevention and Control» (WHA 58.22) (2005); «Workers health, global plan of action» (WHA60.26) (2007); «Global Action Plan for the Prevention and Control of NCDs 2013–2020» (WHA66.10) (2013). Special provisions of the ILO Conventions and Recommendations of the WHO, the International Agency for Research on Cancer, the results and recommendations of actual scientific research were also accepted.

In the process of development of preventive measures on occupational cancer because of the Eurointegration process of Ukraine in prevention of occupational cancer there were taken into account provisions of the Directive 2014/27/EU «Carcinogens or mutagens at work» and Directive 2004/37/EC «On the protection of workers from the risks related to exposure to carcinogens and mutagens at work» and others.

At present, services of the state sanitary and epidemiological surveillance, health and safety supervision, continuation of health care reforms are undergo in Ukraine, irrespective of the deep economic crisis.

The above mentioned was the reason of some negative consequences of cancer hazards and prevention of occupational cancer in Ukraine, the most important of which are:

- lack of a corresponding state body for controlling a carcinogenic hazard in industries (previously these functions were executed by the State Sanitary and Epidemiological Service of Ukraine);

Table

Research on prevention of occupational cancer, conducted in IOH

Title of the research	Years
<i>Scientific research work</i>	
«To improve risk assessment and registration system on occupational cancer in workers of cancer- hazardous enterprises of Ukraine for grounding preventive measures»	2004–2006
«To investigate effects of work conditions on the health of workers in the asbestos cement production of Ukraine and to develop measures on prevention of occupational risks to human health»	2005–2008
«Scientific basis for monitoring cancer morbidity in workers of cancer-hazardous productions of Ukraine»	2008–2011
«To develop a scientifically-based system of predicting the occurrence and early diagnostics of tumor malignant in bronchi and lungs among patients with occupational pathology of dust etiology»	2009–2011
«Determining regularities on morbidity of workers in energy and coal mining industries for the period of 2009–2011, development of the prognosis for 10 years, working out recommendations for improvement of the current situation on the basis of the proposed recommendations»	2012
«Scientific substantiation of the system for a quantified assessment of the cancer hazard to employees, engaged in main branches of the national economic of Ukraine»	2012–2014
«Epidemiological analysis of determining the link between asbestos exposure and morbidity of malignant mesothelioma in the population of Ukraine»	2013–2014
«Identification of the cancer hazard and substantiation of preventive measures on cancer pathology among health care workers»	2015–2017
«Risk assessment and prevention of work-related morbidity in workers of the dental service in conditions of using modern medical technologies»	2016 – 2019
<i>Research for Dissertations</i>	
Denis V. Varyvonchuk «The work-related cancer hazard in Ukraine and substantiation of prevention of occupational cancer» (Dr. Sc. in med.)	2007
Elina V. Ruban «Toxicological characteristics and hygienic work conditions in production of metal azodyes («riazolans»)» (PhD. in biol.)	2010
Oleg I. Remennyk «Risk assessment and system on prevention of work-related cancer of lungs and bronchi» (PhD in med.)	2011
Artem O. Salyukov «Scientific substantiation of the system on prevention of work-related diseases, caused by natural ultraviolet radiation» (PhD in med.)	2013
Vladislav L. Shtanko «Development of the system on prevention of occupational tuberculosis among health care workers in Ukraine» (PhD in med.)	2013
Svetlana V. Kharkivska «Scientific substantiation of the system on prevention of occupational and work-related morbidity in workers of the manganese-ore industry» (PhD in med.)	2015
Vadim I. Shevchenko «Substantiation of the system on prevention of work-related cancer pathology in health care workers» (PhD in med.)	2016

- lack of the list of substances and agents, prohibited to be used in industry;
- using the old «List of substances, products, industrial processes, domestic and natural factors, being carcinogenic to humans» (2006), which does not meet actual scientific knowledge in accordance with the «IARC Monographs»;
- lack of hygienic standards and indicators of the carcinogenic potential on the entire spectrum of carcinogenic substances and agents, occurred or produced in work conditions;
- lack of provision in definition and monitoring of all spectrum of carcinogenic substances and agents at workplace, leading to the impossibility to identify a cancer hazard and forming groups of workers, being at high risk of subjection to medical supervision (previously such functions were inherent to laboratory centers of the State Sanitary Epidemiological Service of Ukraine);
- lack of an effective system on screening of the cancer diseases among workers engaged in cancer hazardous conditions during medical examinations

- (the Ukraine's current program on medical examinations of workers engaged in hazardous and dangerous conditions is not adapted to current scientific knowledge on screening, diagnostics and risk of development of cancer in workers under the influence of carcinogenic substances and agents);
- lack of the system on medical life-long (cancer) supervision of employees, exposed to carcinogenic risk (there is no system of the dispensary supervision over individuals, working in cancer-hazardous conditions);
 - lack of identification and registration of occupational cancer, due to a significant reduction in the network of occupational health institutions, insufficient number of physicians in occupational health, low level of knowledge in physicians of all specialties on occupational cancer problems.

The above-mentioned points to a number of systemic problems at the national level in the field of ensuring the occupational cancer prevention in Ukraine, pointing to the need of further research, aimed at:

- updating national lists, classifications, regulations on carcinogenic substances and agents, according to the current scientific knowledge;
- development of technical standards and organization system for monitoring the carcinogenic hazard at workplace;
- development of the National Register of workers, engaged in cancer-hazardous work conditions, and organization of a qualified and effective supervision of their state of health throughout the whole life;

- developing organizational standards and clinical protocols on occupational cancer;
- follow up studies on identification of the cancer hazard, risk assessment, biomonitoring, screening and early diagnostics of cancer pathology as a results of exposure of workers to carcinogenic substances and agents in production;
- implementation of measures directed at the replacement of carcinogenic substances and agents by not carcinogenic or less harmful ones, reducing the number and duration of exposure of workers to carcinogenic substances or agents at workplace.

Conclusion

Within 2004–2016, Ukraine has implemented a number of scientific investigations, making it possible to develop methodological and methodical basis for implementing measures on epidemiological monitoring and preventing occupational cancer at the national and sectoral levels.

At the present stage of developing there are available shortcomings in the prevention of occupational cancer in Ukraine, associated with systemic problems in government administration, resulting from restructuring and reforming bodies of the executive power.

All the above underlines the need to further prospects in scientific research in Ukraine, aiming to overcome the existing shortcomings and the subsequent implementation of international recommendations on prevention of occupational cancer.

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Варивончик Д. В.

ДОСЯГНЕННЯ ТА ПЕРСПЕКТИВИ ПОДАЛЬШИХ НАУКОВИХ ДОСЛІДЖЕНЬ З ПИТАНЬ ПРОФІЛАКТИКИ ПРОФЕСІЙНОГО РАКУ В УКРАЇНІ

Державна установа «Інститут медицини праці Національної академії медичних наук України», м. Київ

Вступ. Професійний рак є актуальною проблемою медицини праці. Реформування національної системи охорони здоров'я, охорони й безпеки праці в Україні визначають необхідність в обранні стратегії наукових досліджень з питань професійного раку.

Мета дослідження – узагальнити результати реалізованих наукових досліджень та визначити стратегію подальших досліджень в напрямі профілактики професійного раку в Україні в умовах реформування національної системи охорони здоров'я та охорони й безпеки праці.

Матеріали та методи дослідження. Проведено узагальнення результатів наукових досліджень, реалізованих в ДУ «Інститут медицини праці НАМН України» у 2004–2016 роках.

Результати. Упродовж 2004–2016 років в Україні реалізовано низку наукових досліджень, які дозволили наступне: налагодити виявлення, реєстрацію та епідеміологічний моніторинг професійного раку; ідентифікувати канцерогенну небезпеку та оцінити ризики захворювання працюючих на професійний рак в пріоритетних галузях економічної діяльності країни, а також в окремих канцерогенно-небезпечних виробництвах (азбестоцементному, асфальтобитумному, коксохімічному, гумовотехнічному, машинобудівному, чорній металургії, ураново-добувному, в охороні здоров'я тощо); дослідити етіологію та патогенез професійного раку легень, плеври, шкіри; доповнити уявлення щодо патогенезу раку при експозиції пилом силіцію діоксиду кристалічного, ультрафіолетового випромінювання тощо. На сучасному етапі розвитку України спостерігаються недоліки в профілактиці професійного раку, які пов'язані з системними проблемами в державному управлінні, що виникли внаслідок реорганізації та реформування органів виконавчої влади. Зазначене визначає необхідність подальших досліджень, спрямованих на подолання наявних недоліків та подальшої реалізації в Україні міжнародних рекомендацій з профілактики професійного раку.

Ключові слова: професійний рак, профілактика, наукові дослідження

Варивончик Д. В.

ДОСТИЖЕНИЯ И ПЕРСПЕКТИВЫ ДАЛЬНЕЙШИХ НАУЧНЫХ ИССЛЕДОВАНИЙ ПО ПРОФИЛАКТИКЕ ПРОФЕССИОНАЛЬНОГО РАКА В УКРАИНЕ

Государственное учреждение «Институт медицины труда Национальной академии медицинских наук Украины», г. Киев

Введение. Профессиональный рак является актуальной проблемой медицины труда. Реформирование национальной системы здравоохранения, охраны и безопасности труда в Украине обуславливают необходимость в определенной стратегии дальнейших научных исследований по вопросам профессионального рака.

Цель исследования – обобщить результаты реализованных научных исследований и определить стратегию дальнейших исследований в направлении профилактики профессионального рака в Украине в условиях реформирования национальной системы здравоохранения и охраны и безопасности труда.

Материалы и методы исследования. Проведено обобщение результатов научных исследований, реализованных в ГУ «Институт медицины труда НАМН Украины» на протяжении 2004–2016 годов.

Результаты. В течение 2004–2016 годов в Украине реализован ряд научных исследований, которые позволили следующее: наладить выявление, регистрацию и эпидемиологический мониторинг профессионального рака; идентифицировать канцерогенную опасность и оценить риски заболевания работающих профессиональным раком в приоритетных отраслях экономической деятельности страны, а также в отдельных канцерогенно-опасных производствах (азбестоцементном, асфальтобитумном, коксохимическом, резинотехническом, машиностроительном, черной металлургии, ураново-добывающем, в здравоохранении и т. д.), исследовать этиологию и патогенез профессионального рака легких, плевры, кожи; дополнить представления о патогенезе рака при экспозиции пылью кристаллического двуокисью кремния, ультрафиолетового излучения и т. д. На современном этапе развития Украины наблюдаются недостатки в профилактике профессионального рака, связанные с системными проблемами в государственном управлении, возникших в результате реорганизации и реформирования органов исполнительной власти. Указанное определяет необходимость дальнейших исследований, направленных на преодоление имеющихся недостатков и дальнейшей реализации в Украине международных рекомендаций по профилактике профессионального рака.

Ключевые слова: профессиональный рак, профилактика, научные исследования

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