

PECULIARITIES OF THE MORBIDITY OF THE MEDICAL PERSONNEL IN THE EUROPEAN NORTH OF RUSSIA

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ABSTRACT

Unfavorable climatic and environmental conditions in the region lead to a steady increase in the incidence of medical workers. The state of health of 4062 people, medical and non-medical personnel of health care institutions located in the European North of Russia was studied. The results of the study showed that the total incidence of medical workers was 1990.4 cases per 1000 people, with respiratory diseases in health workers occupy a leading position, and 45-49% of the surveyed persons have chronic diseases, which is significantly higher than that in non-medical workers. The health status of medical workers was assessed in age and experience groups, as well as the analysis of the frequency of occurrence of classes of diseases. The surveyed noted the deterioration of their health, linking it with the nature of their work. The results of the study indicate that the work of medical workers in the European North of Russia should be considered as an additional risk factor for chronic diseases due to the influence of a wide range of production factors.

***Keywords:** Medical workers, occupational diseases, respiratory diseases, morbidity rate.*

INTRODUCTION

On the territory of the Arkhangelsk region, which is part of the European North of Russia, due to the peculiarities of geographical location, severe weather conditions on temperature and wind characteristics, sudden changes in atmospheric pressure, significant magnetic and gravitational perturbations, specific photoperiodicity, high humidity and the prevalence of cloudy weather creates uncomfortable climatic conditions of residence [1]. In the Arkhangelsk region, the condition of the atmosphere and water is determined by the influence of 400 enterprises that emit harmful substances into the atmosphere.

Environmental problems of the region are the result of anthropogenic pollution of the environment, which is facilitated by climatic conditions, which largely determine the spread, dispersion and accumulation of pollutants entering the natural environment.

The level of morbidity of the population of the European North of Russia significantly exceeds similar indicators for the Russian Federation due to cancer, diseases of the cardiovascular system, diseases of the musculoskeletal, nervous, genitourinary and endocrine systems, including among various professional groups [1], [2], [3], [4]. One of these occupational groups includes medical workers, whose functional has increased significantly over the past five years, which has a negative impact on their health. This situation has led to a deterioration in the health of health care workers; they are ill for a longer time than other professional groups, there is the formation of severe forms, leading to permanent disability [5], [6], [7], [8]. Our analysis of the level of morbidity allowed us to establish that the first place in their environment is occupied by respiratory diseases.

The revealed unfavorable demographic situation in the region against the background of steady growth of morbidity among medical workers in the Russian Federation within the last decade were the basis for studying of level of morbidity of medical personnel of standard healthcare institutions of the Arkhangelsk region.

MATERIAL AND METHODS OF RESEARCH

The object for the study were typical health care organizations of the European North of Russia, represented by health institutions of the Arkhangelsk region: the Central district hospital, the city multi-profile hospital, the regional hospital and the oncology medical center.

Using the data of periodic preventive medical examinations and sociological survey, we have studied the health status of 4062 people, including 796 doctors, 2217 nurses and 1049 employees from non-medical personnel (control group) of the same health care institutions, almost identical in sex, age and work experience, but their work was not associated with the impact of harmful factors. All patients were at the age group from 20 to 64 years with the average age 38.4 ± 0.7 years, work experience in the specialty – from 6 month to 40 years with the average work experience 14.0 ± 0.7 years.

To estimate health condition and quality of life of medical workers among doctors and nurses, a sociological survey was conducted on a specially designed questionnaire based on the questionnaire SF 36 (The MOS 36-Item Short-Form Health Survey), questionnaire and the questionnaire of the world health organization SAGE [9]. The questionnaire developed by us included the following blocks of questions: marital status, working conditions, health status, the presence of chronic and occupational diseases, the level of medical activity. The survey was conducted individually, face-to-face. The analysis of questionnaires was performed by modifying the classical version of the method of statistical processing "Delphi". For these purposes, we have created and modified a computer program that allowed us to process personal data.

RESULTS AND DISCUSSION

In order to identify age-related peculiarities, all the examined patients were divided into three age groups: 1st - 20-29 years, average age - 26.2 ± 0.3 years, average work experience in the specialty 6.7 ± 0.5 years; 2-nd 30-39 years, average

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age 37.3±0.8 years, average work experience in the specialty 12.7±0.9 years; 3-rd 40-49 years, average age 46.4±0.6 years, average work experience in the specialty 18.6±0.7 years.

In addition, to study the impact of work experience of the specialty on the state of health, three groups were divided: 1st up to 5 years, average work experience in the specialty 4.7±0.5 years with average age 26.2±0.3 years; 2nd with work experience from 5 to 14 years with average work experience in the specialty 12.7±0.5 years and average age 36.2±0.5 years; 3rd 15 years and more with average work experience in the specialty 18.7±0.5 years and with the average age 47.2±0.3 years.

The prevalence of women was 90.3%, men – 9.7%, with the majority of persons aged 40-49 years (29.6%) and 30-39 years (32.5%). The age group of 20-29 years was insignificant and amounted to only 16.2%, while they had a total medical experience of 15 years and more than 31.7%, from 5 to 14 years 52.0% and up to 5 years 16.3% of the surveyed.

The total incidence morbidity of medical workers in the European North of Russia was 1990.4 per 1000 people, which is almost two diseases per person for the whole examined sample, exceeding similar indicators for other professional groups of the population of the Arkhangelsk Region and the Russian Federation (table.1).

Table 1 Comparative prevalence of the general morbidity of medical workers, the population of the Arkhangelsk region and the Russian Federation (per 1000 people)

	Registered patients-total		
	Surveyed health workers	Arkhangelsk region	Russian Federation
All disease	1990,4	1901,0	1583,2
Diseases of the respiratory system	531,4	478,6	379,3
Diseases of the circulatory system	246,8	241,5	227,1
Diseases of the digestive system	155,2	149,5	112,5
Diseases of the musculoskeletal system and connective tissue	153,3	152,6	128,2

The most common nosological forms were diseases of the respiratory system, circulatory system, digestive system and diseases of the musculoskeletal system. The analysis of the data of medical workers revealed that 45-49% of the examined persons have chronic diseases. In the control group of non-medical workers among the leaders were the same classes of diseases as that of health workers, but the frequency of their occurrence was lower in most groups of diseases. Among all identified classes of diseases, the first place belongs to respiratory diseases (26.7 %), the proportion of other classes of diseases was several times lower.

It should be noted that 55% of people were diagnosed with respiratory diseases, with more than 11% were observed in two nosological forms of this class of

diseases. The most common were the following nosological forms: allergic rhinitis (143 ‰), chronic bronchitis (122 ‰), laryngitis (90 ‰), sinusitis (90 ‰), tracheitis (85 ‰). In the structure of respiratory diseases in medical workers the leading place was occupied by allergic rhinitis (27 %), chronic bronchitis (23 %), laryngitis and sinusitis (17%), tracheitis (16%).

Health status of health care workers was assessed in age and experience groups. There was an increase in the prevalence of respiratory diseases in older age groups and with a long experience in the specialty. With age, the prevalence of respiratory diseases increases from 24.5 % (age group 20-29 years) to 28.7% (age group 40-49 years) ($p < 0,05$) with the difference of 1.2 times. In groups with different work experience the difference in indicators is 2.3 times ($p < 0,05$). In persons with less experience in almost 20% of cases there were no respiratory diseases, while specialists with longer work experience, such persons were three times less, only 6 % ($p < 0,05$), and 1.5 times more people with two respiratory diseases (almost 80% against 52% in the group with less work experience). The average work experience of persons without diseases of this class was $4,5 \pm 1,2$ years, having one nosological form - $14,0 \pm 1,5$ years, two diseases - $20,2 \pm 2,6$ years.

The frequency of occurrence of different nosological forms of respiratory diseases in age and age groups was analyzed.

In age group:

– allergic rhinitis occurs 2.2 times less frequently in the younger age group than in the older age group, 18% and 37% respectively;

– chronic bronchitis was 2 times more common in the older age group (16 %) and only 8 % in the younger age group, but these values were statistically insignificant;

– laryngitis and sinusitis occurred with the same frequency (17 %) in different age groups;

– tracheitis occurred in the older age group in 18% cases and 12% in the younger age group ($p < 0,05$).

In groups of work experience:

– allergic rhinitis is common among health workers the younger group experienced 2.1 times less than in individuals older experienced groups (17 % and 36 % respectively);

– chronic bronchitis was 2 times more common in the older study group (18% vs. 9 % in the younger study group);

– laryngitis and sinusitis met with the same frequency (16.7 %) in different study groups;

– tracheitis occurred in individuals of the older study group in 20% vs. 12 % in the younger study group ($p < 0,05$).

Receive data allows us to conclude that we have not been able to find a clear link between work experience in the specialty and the presence of respiratory

diseases in the examined medical workers, but there is a clear trend of increasing diseases of this class with age. Attention is drawn to the fact that 24% of all respiratory pathology falls on persons not older than 35 years with work experience of not more than 4 years. At the same time, it should be noted that these persons undergo a medical examination upon admission to work, which does not detect the presence of diseases.

Self-assessment of the health level showed that 64.0% of health workers rated their health level as "satisfactory", 29.0% – as "good". The "bad" rating set to 4.0%, the "excellent" level of health is appreciated only by 3.0% of respondents.

44.5% of doctors and nurses reported deterioration in their health over the past three years, and 37.5% attributed this deterioration to the nature of their work, including the use of medical equipment and personal computers.

69.4 % of examined medical workers rated their level of medical activity as average, 26.4% – as high and 4.2% – as low. The revealed low medical activity of medical workers contributes to a more rapid progression of their chronic diseases.

Despite the high level of morbidity, health workers, having a high availability of medical care, rated their health level "excellent" only in 3% of cases, while only 15% of the examined were registered at the dispensary and regularly visited doctors.

CONCLUSION

Thus, as a result of the study revealed that respiratory diseases were the leading class of the diseases among health workers. At the same time, the level of prevalence of chronic diseases in hospital teams ranged from 45% to 49%, statistically significantly exceeding the same indicator in non – medical workers of these health institutions (6% - 12%).

In our opinion, the work of medical workers in the European North of Russia should be considered as an additional risk factor for chronic diseases due to the influence of a wide range of occupational factors that differ in type and intensity of exposure. The identified negative trends in the deterioration of health of medical workers demand the need for the organization and implementation of preventive measures aimed at early detection of respiratory diseases, followed by therapeutic and recreational activities.

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