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Global Challenges of Modern Era: Cardiovascular Diseases at The Beginning of XXI Century

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ABSTRACT

At the beginning of XXI century cardiovascular diseases continue to be the most significant problem for modern medicine as the field of theoretical scientific knowledge, practical medicine, social, economic and domestic political spheres of activity in most countries of the world, and against the background of the outbreak of modern pandemics they have taken on the outlines of serious challenges to humanity, its viability.

Particular attention is drawn to the fact that the population of the whole world feels the consequences of cardiovascular diseases expressed in the steady disability of the adult population, demographic decline, low life expectancy and high mortality rates.

As analyzed in the article, these facts have become a serious basis for finding the ways to combat cardiovascular diseases on a global scale coordinating the actions and efforts of different countries in a single common task.

In the work the author focuses the main attention on how important it is to convey the message to the international community that the problem of cardiovascular diseases is not only a strictly medical one and that it is beyond the power of healthcare organizations to solve it alone, even having mobilized all their capabilities.

The purpose of the research:To create a general picture of cardiovascular pathology in the modern world as a global social problem in order to find ways to correct the activities of national and international health organizations, as well as non-medical organizations to combat heart pathologies.

Research objectives:

1. To analyze the epidemiological picture of cardiovascular diseases (CVD) in the world.
2. To find the influence of risk factors, lifestyle and social conditions on CVD prevalence.
3. To analyze the main risk factor for CVD – arterial hypertension.
4. To assess the global vision of national strategies for combating CVD.

The methodology of this study is based on the foundations of:

- analysis and assessment of the state of CVD problem in the modern world;- consideration of this problem in directions (causes, prevalence rate, methods of treatment, prevention of heart diseases) to find optimal and effective measures to combat CVD;
- determination of the interrelations of the existing root causes of the widespread occurrence of CVD in order to combine international efforts and organize a comprehensive struggle with them;
- detection of the probability and chance of a modern person to become a victim of CVD and the opportunity to receive medical and social aid in this regard.

Scientific novelty:

- the research was conducted with the comparative analysis aimed at studying the influence of CVD risk factors in various regions of the Earth;
- the interrelationship of risk factors, in particular arterial hypertension, with CVD progress was established;

Practical significance of the work:

- it is demonstrated that smoking, physical inactivity, alcoholism, diabetes mellitus (as a concomitant disease) are linked with CVD development;
- it is confirmed that social risk factors increase the risk of CVD.

The results of the analysis of epidemiological situation of cardiovascular diseases in the world can be used to replenish the information database of risk factors for cardiac pathologies and, based on this information, help to create new programs to combat CVD and update the existing long-term programs.

The author comes to the conclusion that only the cohesion of the efforts of all people of good will on a global scale is capable of resisting such serious challenge of our time as cardiovascular diseases.

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INTRODUCTION

Cardiovascular diseases are still one of the most serious problems the healthcare systems of the majority of countries of the world have been facing in the second half of XX century – beginning of XXI century. They annually result in high disablement and mortality rates among the population on all continents. This pathology caused the mortality increase, especially among patients in the developing countries.

KEYWORDS:
urgent problem, struggle with pathology, global challenges, medical care, prospective researches, prevalence, cardiovascular diseases, living conditions, epidemiological picture.

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In this regard, the development of programs, including the international ones, and organization of activities for combating cardiovascular diseases seized to be a purely medical task and got the features of social-economic and social-political ones. This is explained by many social causes, which cannot be avoided due to objective reasons.

In the recent decades, understanding the seriousness, acuteness and danger of the global problem of CVD prevalence in the world, many authors have been highlighting it in their research works. We put great importance on the description of modern clinical picture of CVD (G.Ya. Maslennikova, S.S. Yakushin, G.V. Khodeev). V.S. Volkov, D.Yu. Platonov, L.V. Chazova called upon controlling the dynamics of arterial hypertension prevalence.

V.A. Serov, R.G. Organov dedicated their works to the influence of social and economic factors on the efficiency of struggle with CVD. A.N. Britov, S.M. Mirkhamidova declared the importance of timely prevention of CVD.

The world must work out a unified strategy for the prevention of cardiovascular diseases, their diagnostics, treatment at early stages, provision of medical aid to seriously ill patients in all countries all over the world, in remote localities, in severe climatic conditions and lack of modern blessings of civilization. Stakes are high: heart rhythm is the rhythm of life of all our planet.

The epidemiologic picture of cardiovascular diseases in the world

The society has always had special attitude to heart diseases. A human heart is a sacral organ, which is attributed both real and exaggerated qualities and capabilities. The role and significance of heart have not only physiological but also moral and ethical value, they are subject to allegories widely used both directly and figuratively. The heart became the symbol of many virtues and vices, its significance can be neither overestimated nor compared with anything.

Having a special mission, the heart is still the same vulnerable organ amenable to pathologies as any other organ in a human body. Diseases of cardiovascular system comprise multiple functional disorders of heart and vessels. These are cardiac deficiency, ischemic disease, atherosclerotic vascular disease, arterial hypertension, aneurysms, cardiac arrhythmia and other pathologies. Each of them taken separately is considered as a serious public problem in the modern world, and all of them together – as one of the global challenges to the health integrity of the Earth population.

According to the data of World Health Organization (WHO), cardiovascular diseases (CVD) take the first place among top ten most widely spread diseases leading to mortality in the world [2, p. 89]. The research results of Global Burden of Disease demonstrate that over 400 million people suffered from CVD in 2015 [2, p. 90], and 17.7 million of them died.

This statistics testifies that the problem has a global character, it is modeling not only demographic but also social and economic indices, and is restraining progressive development of separate countries and even the whole continents.

The problem has the following specifics: everywhere in the world, where the stable growth of registered CVD cases is observed, the disease incidence has the tendency to rejuvenation – heart pathologies capture more and more people from “the risk groups”. The CVD incidence in underdeveloped countries with low level of medical service, increased disability and mortality rates caused by CVD are especially worrying. Therefore, there is an ongoing search for primal causes of the progress of heart pathologies in XX-XXI centuries.

The characteristic reasons for CVD growth in the modern world are as follows: psychological stresses as a result of instability and high rhythm of life, low food culture and malnutrition, hypodynamia, disorder of general life order, mass chaotic migration, lack of elementary comfortable life conditions and civilization blessings, asocial habits, uncontrolled intake of pharmacological agents, self-treatment, genetic reasons.

Due to the prevalence degree and harm caused, CVD are understandably claimed to be the pandemic of XXI century since even in economically developed countries each fourth person is affected by cardiovascular diseases [11].

The reaction of modern medicine and world community to CVD prevalence is expressed not only in one-time epidemiologic investigations of heart diseases in separate regions of the Earth but also in working out unified methodological approaches for organizing, conducting and assessing the results of such investigations.

The clinical investigations of heart pathologies started as early as 1940-s in the western continent, in Framingham, where the cases of heart diseases were revealed with 3.4% of middle-aged men.

Gradually, the foundation of preventive cardiology was laid and the procedure for conducting cardiac epidemiological investigations in all industrially developed countries was set.

The project “Seven Countries Studies” (of seven countries from different regions of the Earth) became the major investigation of heart pathologies [3, p. 30], which set the existing differences in the prevalence of heart diseases against a number of criteria.

Japan demonstrated the lowest level of heart pathologies among industrially developed countries of the world [3, p. 33].

The level of mortality from CVD in Russia was 330 cases per 100,000 men and 154 cases per 100,000 women during 1980-1990-s [2, p. 92].

In comparison with 1990-s when the highest level of mortality from CVD was registered in the Russian Federation, the considerable decrease in the level of mortality caused by such pathologies has been registered within the recent decade. This success became possible after the effective measures to combat heart diseases were taken in Russia in the frameworks

of Federal programs and National projects for helping sick people [13].

Here, it should be pointed out that in the process of statistic data compilation, despite the existing rules of World Health Organization for detecting the initial reason of death, methodologically different approaches for finding these reasons and their incorrect recording were allowed. In the Russian Federation "there are certain problems with the interpretation of terminology of CVD acute forms, their diagnostics and coding in statistic documents that can influence the mortality rate" [2, p. 93]. Therefore, it can be logically concluded that only a partial success of domestic medicine is registered in Russia and healthcare delivery defects are detected in many regions at different stages of the disease progress.

The epidemiological picture of cardiovascular diseases is diversified all over the world but there are factors eliminating such diversification. They include danger of pathology, its drastic consequences and need to combat it.

Influence of risk factors, lifestyle and social conditions on the prevalence of cardiovascular diseases

In XX century the dynamics of heart pathologies reached the level of pandemic of chronic noncontagious diseases. This obvious fact requires explanation and substantiation since it is not only in the scope of healthcare interests but also has the general social, theoretical and practical meaning in a broad sense. Only the search for and detection of primal causes of the active dynamics of CVD prevalence in the world can substantiate the effective measures for their preventive care and treatment.

Cardiovascular diseases, as well as many other having noncontagious nature and biosocial dependence, are a global social and hygienic problem requiring attention and solution as the pandemic for the following reasons [11]:

- growth of CVD cases is annually observed all over the world;

- rejuvenation of heart pathologies is observed;

- increased disability and mortality rates caused by CVD are observed;

- heart pathologies are the reason for temporary disability of active population;

- social dependence of heart diseases is increasingly traced;

- a number of those suffering from CVD with associated risk factors is constantly increasing.

Two groups can be singled out from the multiple CVD risk factors:

1. "Medical" risk factors (genetic factors, overweight, abnormal level of carbohydrates, hypertonia);

2. Social and domestic risk factors (food culture misbalance, including both high and unacceptably low caloricity; drug addiction, alcoholism with drinking unacceptable alcoholic drinks and poisoning alcoholic substances, tobacco smoking); physically low-active lifestyle in the conditions of ecological ill-being of urban environment; chronic violation of the day routine with the failure of natural biological rhythms of a person, irregular nutrition, sleep and active rest deficiency; living under stress, including the information one, uncertainty about tomorrow, children's future, own and their security.

As practice shows, the primary and secondary preventive procedures against CVD social harm play an important role in supporting health and preserving working ability of people [11].

Apart from the positive changes in the population's lifestyle, the scientific concept of CVD prevention comprises the activities of the secondary preventive procedure. It is necessary to form the system of emergency medical services, establish scientific and research institutions of cardiology and chest surgery, arrange the activities of cardiologic service (cardiologic offices, departments in in-patient facilities and dispensaries, institutions of medical rehabilitation) on a countrywide scale.

All countries should pay special attention to the social policy in healthcare to provide CVD medical aid and preventive procedures in the regions of natural and social disasters, especially permanently unstable regions, where the increased risk factors span the whole generations of population.

It is important to start CVD preventive procedures from the childhood when the grounds of lifestyle concept are formed [1].

Even simple measures, socially available to the majority of population, can prolong life. All population of the Earth should understand that healthy lifestyle is the future of humanity.

Multiple risk factors, including social ones (conditions and way of life), influence the prevalence of cardiovascular diseases, thus making CVD not purely medical global problem of modern era.

Main risk factor of cardiovascular diseases: arterial hypertension

Arterial hypertension is one of the main death reasons all over the world, including urbanized regions of industrially developed countries [6, p. 85]. Hypertension sufferers are 1.28 billion people among the adult 30-79 year-old population, two-thirds of them live in underdeveloped and mid-level countries [10].

This circumstance, sad in its statistics, sparks the professional interest of medical scientists and practitioners.

The fact that arterial hypertension is a risk factor of CVD was established in the result of Framingham Heart Study [4, p. 14]. In XXI century, when the society awareness by all social directions is high as never before, 46% of adults suffering from hypertension do not suspect about the availability of this disease [10].

In Russia arterial hypertension represents a special danger for the regions of Far North where it has the status of geographical pathology in the conditions of high latitudes. The negative complex formed – low temperatures, long winter, changed food ration, conditions of labor and living subjects a human organism to heavy stress load affecting, first of all, the heart [9, p. 7].

It is extremely important for the population to be firmly aware of the hypertension symptoms, frequently invisible, without warning signals, that is why the disease got the status of "silent killer". The regular measuring of blood pressure must become the rule of everyday life of each adult person [8, p. 95].

In XXI century the struggle with arterial hypertension acquired a universal social form. The plan of struggle with arterial hypertension on a global scale assumes the following:

- to convey the available information about the reasons of arterial pressure and its possible consequences to the population of all countries and regions of the Earth;

- to convince people of all ages and social groups in the importance of correct lifestyle, which, if not followed, can become the hypertension reason;

- to explain the necessity in regular arterial blood pressure monitoring in adults;

- to obligate state and local administrative bodies to arrange the social environment contributing to the healthy lifestyle [14].

Even if a person has the possibility to measure the blood pressure by himself or herself at home, a medical specialist should carry out the examination once a year to avoid any risks. The preventive medical examination is very important and its undergoing is the form of demonstrating social discipline and social consciousness [14].

It is important to persuasively demonstrate to the population of all countries that the possibility of development of this risk factor and its negative consequences can be minimized, if the following measures are taken: decreased salt consumption, alcohol control, exclusion of low-quality and homemade spirits, limitation of fat consumption and exclusion of transfats from food ration [14].

Arterial hypertension, without exaggeration, is the main risk factor of cardiovascular diseases but in XXI century this global challenge should not look like a sentence.

Global vision of national strategies to combat cardiovascular diseases

In XXI century it became obvious that for prevention of cardiovascular diseases and control of their dynamics, it is necessary, first of all, to change the unhealthy social behavior of people on a global scale [1, p. 19; 12]. But such possibility, the same as the favorable environment of population's life, can be created only when the health of people becomes the object of tutelage and control of the state policy in all countries of the world in main social spheres – education, finance, housing and utilities infrastructure, transport, social welfare, agriculture, international and regional trade, labor and household management [12]. Only such political algorithm of actions can give the population a chance and economic accessibility to form and maintain the healthy lifestyle in respect of the food culture, alcohol and drugs consumption, tobacco smoking and physical activity [5; 7].

The activity plan of World Health Organization on noncontagious diseases approved by World Health Assembly in 2008 assumes three directions: creation of world cartography of CVD prevalence, decrease in the effect of risk factors on population, improvement of medical services to patients suffering from CVD.

In 2007 World Health Assembly adopted the resolution "Prevention and control of noncontagious diseases: introduction of global strategy". The global action plan of World Health Organization on noncontagious diseases was targeted at the support of strategies and intervention measures in respect of specific noncontagious diseases by formulating the following provisions [12]:

Task 1. To fix the prioritized position of noncontagious diseases, integrate preventive procedures and control actions on noncontagious diseases into the governmental policy of all countries.

Task 2. To contribute to the decrease in corrected and uncorrected risk factors of noncontagious diseases: low food culture, lack of physical loads and alcohol abuse, tobacco smoking.

Task 3. To organize research activities, popularize medical knowledge to combat noncontagious diseases and for their prevention.

Task 4. To develop international partnership and friendly links in the field of prevention of noncontagious diseases and arrangement of complex struggle with them.

Task 5. To track the progression dynamics of noncontagious diseases in the world at regional, national and global levels.

The fact is that at the beginning of XXI century we see the discrepancy between the needs of countries, especially underdeveloped ones with numerous population, in conducting researches in the control of noncontagious diseases and their prevention, on the one hand, and available financial and human resources to satisfy them, on the other hand.

It is necessary to develop both regional and balanced large-scale plans of research works in the field of contagious diseases, in which the top-priority and urgent tasks will be set based on the needs of each country and interests of international healthcare service.

Multiple national strategies for combating cardiovascular diseases require global analysis and solutions.

CONCLUSION

It became obvious in XX century that the healthcare service at cardiovascular diseases and their prevention are very effective and can decrease the disease incidence, disablement and mortality levels among the population of all countries.

However, in the conditions of limited resources it is necessary to be sure that the resource consumption will be optimal in the correlation between the capabilities and needs, and the scale of these measures will be available to population, technically feasible and economically justifiable to make the optimal and correct decision.

The optimally available complex of measures to prevent cardiovascular diseases and struggle with them, which mainly forms the planet health picture, was defined on a worldwide scale. The mass popularization of healthy lifestyle can preserve millions of lives.

The popularization of physical activity in combination with food culture is also the measure available all over the world.

The results: the article analyzes the epidemiologic picture of cardiovascular diseases in the world, the influence of risk factors, lifestyle and social conditions on CVD prevalence is found, the main risk factor of cardiovascular diseases – arterial hypertension is assessed. The content of national strategies for combatting cardiovascular diseases is considered.

The research purpose – to create the general picture of cardiovascular pathology in the modern world as a global social problem in order to find ways to correct the activities of national and international health organizations to combat heart pathologies – is reached.

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