

Prevention of Cardiovascular Diseases in Young People

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ABSTRACT

The article examines the features of prevention of cardiovascular diseases in young people. The author notes that cardiovascular diseases are among the most common diseases worldwide and cause a significant number of deaths and disabilities. According to the World Health Organization (WHO), cardiovascular diseases are the leading cause of death in the world, and they account for about 31% of all deaths.

Many of the risk factors for the development of cardiovascular diseases in young patients can be prevented by preventive measures, such as proper nutrition, moderate physical activity, quitting smoking and alcohol consumption, weight and blood pressure control, as well as regular medical examinations. In addition, the popularization of a healthy lifestyle, carried out through lectures, presentations, etc., plays an important role.

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INTRODUCTION

Cardiovascular diseases are one of the leading causes of death worldwide, and their trends continue to be high.

Firstly, against the background of an increase in the population and an increase in life expectancy, the number of people suffering from cardiovascular diseases is currently growing.

Secondly, lifestyle changes also lead to an increased risk of developing cardiovascular diseases. For example, increased consumption of high-calorie food, sedentary lifestyle, smoking, alcohol consumption and other harmful habits can increase the risk of developing cardiovascular diseases.

Thirdly, problems of the cardiovascular system are also becoming younger and increasingly affect young people, which is associated with an increased risk of developing metabolic syndrome, obesity, diabetes mellitus and other diseases.

In this regard, it is important to follow a healthy lifestyle, reduce bad habits, eat right, do physical exercises, undergo regular medical examinations and treat diseases at the early stage. In addition, a lot of research is being conducted and new methods of prevention and treatment of cardiovascular diseases are being developed, which can improve the situation in the future. Especially the prevention of cardiovascular diseases is important for the younger generation, because it is they who will work for the benefit of their country in the future. Materials and methods. In the process of studying the topic of the work, the publications of domestic and foreign authors were analyzed, while comparative research methods were applied.

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RESULTS

Cardiovascular diseases are among the most common diseases worldwide and cause a significant number of deaths and disabilities. According to the World Health Organization (WHO), cardiovascular diseases are the leading cause of death in the world, and they account for about 31% of all deaths.

In the United States, cardiovascular diseases are also the leading cause of death. According to the Centers for Disease Control and Prevention (CDC), in 2018, cardiovascular diseases caused the death of more than 655,000 people, which is about 1 out of 4 of all deaths.¹

In Russia, cardiovascular diseases are also one of the main causes of death. According to Rosstat, in 2020, 44% of all deaths were associated with cardiovascular diseases.

The incidence of cardiovascular diseases among young people and adolescents is a serious problem of modern society. According to statistics from the World Health Organization (WHO) for 2019, more than 17 million deaths worldwide occurred due to cardiovascular diseases, of which about 1.5 million cases belong to the age group from 15 to 29 years.

In Russia, there is also a high incidence among young people and adolescents. According to the Federal State Statistics Service (Rosstat) for 2020, cardiovascular diseases were the cause of death in 13.3% of people aged 15-34 years.

In addition, studies show that the incidence of cardiovascular diseases among young people and adolescents continues to grow. For example, according to a study conducted in Russia in 2020, the incidence of coronary heart disease among young people under the age of 30 has increased by 21% over the past 10 years.

This increase in morbidity is attributed to several factors, including a decrease in physical activity, an increase in the consumption of junk food and bad habits such as smoking and alcohol consumption. Heredity and metabolic disorders may also play a role.²

Cardiovascular diseases are a group of diseases associated with impaired functioning of the heart and blood vessels. They can occur due to various reasons, including genetic factors, lifestyle, age and the presence of other diseases. For example, atherosclerosis is one of the main causes of cardiovascular diseases. This is a disease that occurs due to the accumulation of cholesterol and other fatty substances on the walls of blood vessels, which leads to narrowing of their lumen and deterioration of blood flow. As a result, it is possible to develop coronary heart disease (CHD), myocardial infarction and other diseases of the cardiovascular system.³

Other causes of cardiovascular diseases include hypertension, diabetes, disorders of the heart valves, cardiac arrhythmias, congenital heart defects and other diseases.

The pathogenesis of cardiovascular diseases may vary depending on the specific disease, but they are usually associated with impaired blood flow and the provision of oxygen and nutrients to tissues. Violations can occur both due to narrowing of the lumen of the vessels, and due to a malfunction of the heart or other factors. For example, with coronary artery disease

obstructions occur in the coronary arteries, which leads to a violation of blood flow to the heart muscle, which can lead to ischemia and myocardial infarction. In hypertension, the contraction of the heart is stronger than usual in order to pump blood through narrowed arteries, which can lead to an increase in the load on the heart and its deformation.⁴

Thus, the etiology and pathogenesis of cardiovascular diseases are quite complex and may have different causes and mechanisms of development depending on the specific disease.

In addition, heredity can also play a role in the development of cardiovascular diseases. Some people may be more susceptible to developing diseases of the cardiovascular system due to the presence of genetic factors, including the presence of hereditary mutations or changes in genetic expression that can affect the functioning of the heart and blood vessels.

Also, lifestyle can have a significant impact on the development of cardiovascular diseases. Smoking, insufficient physical activity, poor nutrition and excessive alcohol consumption can increase the risk of developing cardiovascular diseases such as coronary heart disease, hypertension and arrhythmia. Some diseases can also affect the development of cardiovascular diseases. For example, diabetes can increase the risk of developing coronary heart disease and other cardiovascular diseases, since elevated blood glucose levels can damage the walls of blood vessels and increase the risk of blood clots.⁵

The pathogenesis of cardiovascular diseases may also include mechanisms associated with inflammation, oxidative stress and imbalance in the free radical system, which can lead to damage to the cells and tissues of the heart and blood vessels. In general, understanding the etiology and pathogenesis of cardiovascular diseases is important for the development of methods for the prevention, diagnosis and treatment of these diseases. This can help reduce the risk of developing cardiovascular diseases and increase the effectiveness of therapy and rehabilitation in patients who have already experienced these diseases. Chronic cardiovascular diseases, such as coronary heart disease, arterial hypertension, heart failure and others, can significantly worsen the quality of life of patients, especially if they do not receive timely and effective treatment.

One of the most common symptoms of chronic heart disease is fatigue and weakness, which limits a person's ability to do everyday things, work and enjoy life. In addition, such patients often suffer from chest pain, shortness of breath, feelings of tightness and discomfort, which can significantly limit their physical activity and social life.⁶

In turn, a decrease in the quality of life of patients with chronic cardiovascular diseases can lead to depression, anxiety and other psychological problems. This, in turn, can lead to social isolation, reduced productivity and deterioration of the economic well-being of the patient and society as a whole. Therefore, it is important to ensure timely and effective treatment of patients with chronic cardiovascular diseases, as well as to provide them with socio-psychological support. In addition, it is equally important to work on the prevention of the development of these diseases in young people and the general population in order to reduce their prevalence

and minimize negative consequences for the quality of life of patients and the economy of society.

The risk of development and complications of cardiovascular diseases in young patients is an urgent problem in Russia. Thus, in one of the works, the risk of development and complications of coronary heart disease in young patients under the age of 40 was analyzed. The study revealed that the main risk factors for the development of coronary heart disease in young patients are smoking, dyslipidemia (high cholesterol in the blood), hypertension and diabetes mellitus. The authors of the study also note that in young patients who had several risk factors identified simultaneously, the risk of developing coronary heart disease increased significantly.⁷

Another study was devoted to the analysis of the risk of hypertension in young patients aged 18 to 35 years. The study revealed that the main risk factors for the development of hypertension are obesity, kidney disorders, heredity, as well as the consumption of large amounts of salt in food. The authors of the study note that effective prevention of hypertension in young patients should include not only treatment of existing diseases, but also lifestyle changes, reduction of salt intake and regular exercise.⁸

Another group of authors analyzed the risk of myocardial infarction in young patients aged 18 to 44 years. The study revealed that the main risk factors for the development of myocardial infarction in young patients are smoking, hypertension, dyslipidemia and heredity. The authors of the study note that due to the increase in the number of young patients with myocardial infarction, special attention should be paid to the prevention of this disease in young people.⁹

An analysis of the risk of hypertension in young patients aged 18 to 30 years was also carried out. The study revealed that the greatest contribution to the development of hypertension is made by genetic factors, as well as lifestyle factors such as insufficient physical activity, alcohol consumption and smoking.¹⁰

Thus, studies by Russian authors show that the prevention of the development of cardiovascular diseases in young patients is extremely important. The development of cardiovascular diseases leads to a decrease in the endurance of young patients. Medical research on the endurance of young people suffering from heart disease is of great importance for determining the possibilities of physical activity and developing recommendations for physical activity for these patients. One of the studies showed that in young people (from 18 to 30 years old) with a diagnosis of arrhythmia, endurance can be reduced, but with properly selected physical activity they can improve their physical shape. The study also indicated that these patients should receive regular treatment and monitoring by a qualified cardiologist.¹¹

Another study examined the effects of exercise on endurance and heart function in young people (18 to 35 years old) with hypertension. The study showed that regular exercise, such as running, cycling or swimming, can improve endurance and lower blood pressure levels in these patients.¹²

A study was also conducted in which the effect of endurance on the prognosis was studied in young people (from 18 to 49

years old) with a diagnosis of heart failure. The study showed that in patients who have good physical fitness and endurance, the prognosis of the disease is significantly better than in those who have low physical activity and endurance.¹³

In general, medical research shows that young people suffering from heart disease may have limited opportunities for physical activity and endurance.

DISCUSSION

Prevention of cardiovascular diseases is an important task for young people, since the risk of developing these diseases increases with age. Here are some recommendations for the prevention of cardiovascular diseases in young people:

1. Engage in regular physical exercise. They improve the state of the cardiovascular system, increase energy levels and reduce stress. Young people are recommended to be physically active for at least 150 minutes a week.
2. Follow a healthy diet. The diet should be rich in fruit, vegetables, cereals, protein products, but at the same time limit the use of fats, sugar and salt.
3. Do not smoke. Smoking is one of the main risk factors for the development of cardiovascular diseases, so it is necessary to avoid it.
4. Avoid drinking alcohol. Drinking alcohol can increase the risk of developing cardiovascular diseases.
5. Undergo regular medical examinations. This will help to identify diseases in the early stages and start their treatment on time. Avoid stressful situations. Stress can negatively affect the state of the cardiovascular system.
6. Measure blood pressure and monitor its indicators. High blood pressure can be a sign of the risk of developing cardiovascular diseases.
7. Avoid gaining excess weight. Overweight is a risk factor for the development of many diseases, including cardiovascular diseases.

These recommendations will help young people to maintain the health of the cardiovascular system and reduce the risk of developing cardiovascular diseases in the future. To popularize the prevention of the development of cardiovascular diseases in young people, medical specialists can organize specialized lectures. The organization of a lecture hall for young people on the prevention of cardiovascular diseases can be a useful measure to raise awareness among young people about risk factors and methods of prevention of cardiovascular diseases. The preparation and holding of such a lecture can be organized in several stages.

1. Defining the topic of the lecture. The topic of the lecture should be related to the prevention of cardiovascular diseases in young people. For example, the topic may be "The main risk factors and prevention of cardiovascular diseases in young people".
2. Search for a qualified specialist. To conduct a lecture, it is necessary to find a qualified specialist who has sufficient knowledge in the field of cardiovascular diseases and can conduct an informative and interesting lecture.
3. Determining the location of the lecture hall. The venue of the lecture hall should be convenient for young people,

for example, it can be a place at a university, school or other community center.

4. Advertising of the lecture hall. The advertising of the lecture hall is a key element for attracting young people. Ads can be placed on social networks, forums and bulletin boards.
5. Preparation of materials. The lecturer should prepare a presentation or other materials that will help young people better understand the topic of the lecture.
6. Conducting a lecture hall. On the day of the lecture, the lecturer should be ready to answer questions and attract the attention of young people. The lecture should be interesting and understandable so that young people can easily assimilate the information.
7. Performance evaluation. After the lecture, it is necessary to evaluate its effectiveness. To do this, you can use questionnaires that will help you understand how well the youth understood the information and how useful it was.

If the lecture was successful, then you can hold it regularly and expand the topic. You can also use survey results to adapt materials to the needs of young people. To expand the audience and increase the effectiveness of the lecture hall, you can collaborate with other organizations. For example, with universities, schools, sports clubs and other organizations that also take care of the health of their students and pupils.

After the lecture, you can organize additional events on the topic of a healthy lifestyle, for example, sports competitions, yoga courses or fitness classes. Such events will help young people to apply their knowledge in practice. In general, the organization of a lecture hall on the prevention of cardiovascular diseases for young people can be very useful. It will help to raise awareness among young people about risk factors and methods of prevention of cardiovascular diseases, as well as inspire them to take care of their health and the health of others. Taking into account the transition of individual educational institutions to distance learning, the use of thematic online presentations aimed at the prevention of cardiovascular diseases by medical specialists together with teachers will be very active. It may include the following sections:

1. **Introduction.** A brief description of the topic and purpose of the presentation. What is cardiovascular disease (CVD)? Explanation of the basic concepts and definitions related to CVD.
2. **Risk factors for the development of CVD.** Overview of the main factors that can increase the risk of developing cardiovascular diseases, including lifestyle, heredity, age, etc.
3. **Symptoms and diagnosis of CVD.** Explanation of the main symptoms and methods of diagnosis of cardiovascular diseases.
4. **Methods of CVD prevention.** An overview of the main methods of CVD prevention, including proper nutrition, physical activity, giving up bad habits, weight and pressure control, as well as other methods.

The importance of regular medical examination. Explanation of the importance of regular medical examinations to detect CVD in the early stages.

Key recommendations for the prevention of CVD. A set of basic recommendations that will help reduce the risk of developing CVD and improve overall health.

CONCLUSION

A brief repetition of the main ideas of the presentation and an incentive to action in the direction of CVD prevention. The content of the presentation can be supported by illustrations, graphs, statistics, video and audio materials to make it more interesting and accessible to the audience. You can also include interactive elements, such as surveys and tests, to test the knowledge of the audience and help them better assimilate the material.

Cardiovascular diseases (CVD) can lead to serious consequences for young patients, including:

1. **Myocardial infarction.** This is a condition when the blood supply to the heart is almost completely blocked, which can lead to necrosis of the heart tissues and even death
2. **Stroke.** This is a condition when there is a violation of blood circulation in the brain, which can lead to impaired brain function, paralysis and other serious consequences.
3. **Chronic heart failure.** This is a condition when the heart cannot pump blood efficiently, which leads to fatigue, shortness of breath, swelling and other symptoms.
4. **Arrhythmias.** This is a violation of the heart rhythm, which can lead to heart failure, myocardial infarction and other serious consequences.
5. **Atherosclerosis.** This is a condition when the vessels become narrow and stiff due to the accumulation of cholesterol and other substances, which can lead to myocardial infarction and stroke.
6. **Venous thrombosis and embolism.** This is a condition when blood forms a clot in the veins, which can lead to soreness, swelling and other serious consequences.
7. **Cardiomyopathy.** This is a condition where the heart muscles become weak and ineffective, which can lead to heart failure and other serious consequences.

All these conditions can significantly reduce the quality of life of young patients and even threaten their lives. Therefore, it is important to take measures for the prevention and treatment of CVD among young people.

The incidence of chronic heart ailments among young people has a negative impact on the economy and the social sphere as a whole. Treatment of cardiovascular diseases is an expensive process that can lead to significant costs for both the patient and the healthcare system as a whole. Long-term treatment can lead to financial costs, which can become a serious problem for families, especially for those who do not have insurance.¹⁴

Heart and vascular diseases can significantly reduce the working capacity of young people and lead to loss of working hours, reduced productivity and profitability. This can lead to economic losses for companies and the country as a whole.

Cardiovascular diseases can limit the social activity of young people, which can lead to a deterioration in the quality of life, loneliness and depression.¹⁵

Heart and vascular diseases are one of the main factors affecting healthcare costs worldwide. This can lead to an overload of the healthcare system and an increase in the cost of medical services.¹⁶

Heart and vascular diseases can lead to an increase in treatment costs and a decrease in productivity, which can have a negative impact on the economic growth of the country.¹⁷

CONCLUSION

Cardiovascular diseases can develop at any age, but the risk of their development increases with age. They may also be associated with other risk factors such as high cholesterol, hypertension, diabetes and obesity.

Cardiovascular diseases can be prevented or slowed down by lifestyle changes and risk factors control. This may include increasing physical activity, eating a healthy diet, quitting smoking, and reducing stress levels. Treatment of cardiovascular diseases may include drug therapy, heart procedures and restorative rehabilitation. In some cases, surgical intervention may be required, such as bypass surgery or the installation of stents.

It is important to note that many of the risk factors for developing cardiovascular diseases in young patients can be prevented by preventive measures, such as proper nutrition, moderate physical activity, quitting smoking and alcohol consumption, weight and blood pressure control, as well as regular medical examinations. In addition, the popularization of a healthy lifestyle, carried out through lectures, presentations, etc., plays an important role.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed in reviewing the final version of this paper

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