RISK FACTORS AND PREVENTION MEASURES FOR ATHEROSCLEROSIS AMONG YOUNG PEOPLE

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Abstract

Atherosclerosis is one of the most serious and common diseases of the cardiovascular system, characterized by the thickening and hardening of the inner walls of the arteries due to the accumulation of fatty deposits. This process restricts blood flow due to narrowing of the vessels and leads to serious complications such as high blood pressure, heart attacks, peripheral arterial disease, and cerebral hemorrhage or hemorrhage . This article discusses the epidemiological situation of atherosclerosis, risk factors that cause the disease, clinical symptoms, diagnostic methods, treatment methods, preventive measures, and the importance of a healthy lifestyle.
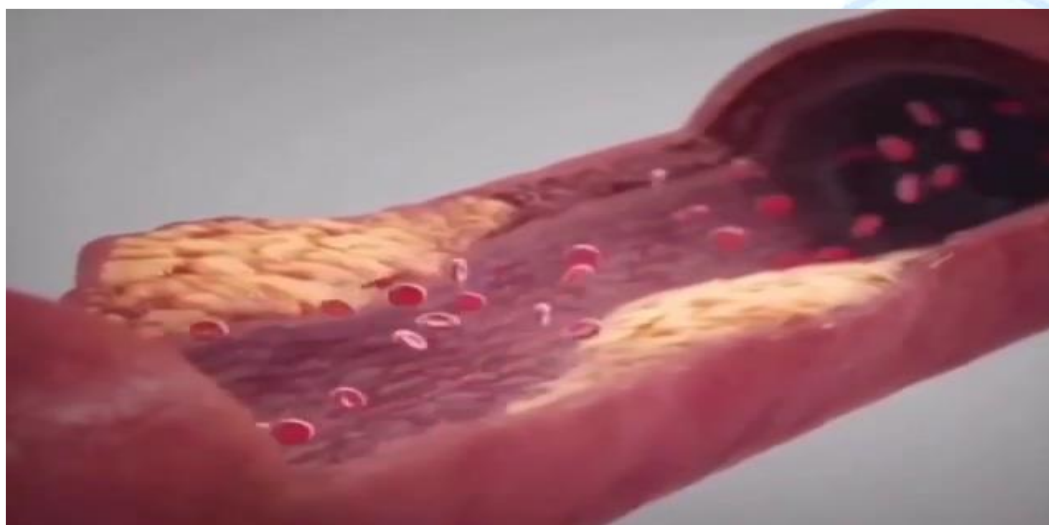
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Intraduction

Atherosclerosis – (Greek "athere" - porridge and " skleros" - hard) - is one of the most common chronic diseases among the population , characterized by the accumulation of cholesterol and calcification on the walls of the arteries, that is, narrowing of the vascular lumen as a result of the accumulation of calcium compounds and the growth of connective tissue, which leads to disruption of the functioning of internal organs and blood circulation .

Cardiovascular disease has been the leading cause of death worldwide for the past decade. In 2021, 20.5 million people died from cardiovascular disease , accounting for one-third of global deaths and a significant increase from the 12.1 million cardiovascular disease deaths recorded in 1990. Atherosclerosis of the coronary arteries and cerebrovascular disease accounts for 85% of all deaths from cardiovascular disease . Ischaemic heart disease is now the leading cause of premature death in men in 146 countries and in women in 98 countries.

Atherosclerosis is a long-term disease that begins slowly. This disease affects more men. This is due to the increased level of cholesterol in their blood, which is an important factor in the development of the disease. Separate atherosclerotic plaques form in the inner layer of the arterial blood vessel wall - the intima. They cause the arterial blood vessel wall to thicken and narrow, which leads to a decrease in elasticity and an increase in blood pressure.

A number of intrinsic and extrinsic risk factors play an important role in the development of atherosclerosis. Currently, more than 30 risk factors are known.

Clinical picture. The clinical symptoms of atherosclerosis depend on the location of the affected area, its degree, and the number of arteries to which the pathological process has spread. However, we can identify a patient with this disease during an objective examination by a number of external signs.

1. Xanthomas and xanthelasmas. Xanthelasmas are yellowish-white formations that appear as a result of lipid accumulation in the eyelids. Similar cholesterol

deposits, called xanthomas, can also occur in other parts of the body. For example, on the chest, shoulders, and thighs. Xanthomas and xanthelasmas are observed not only in IBD, but also in certain liver diseases accompanied by cholestasis and hyperlipidemia.

2. Senile corneal arcus is a sign of hyperlipidemia (increased levels of fat in the blood) and is characterized by the appearance of a light-gray line around the cornea. This condition is also found in elderly patients with atherosclerosis.

3. External signs of premature aging. For example, premature graying of hair and loss of skin turgor.

4. When atherosclerotic changes in the cerebral vessels reach a peak, an acute circulatory disorder - stroke - may occur.

5. Chest pain. Chest pain or tightness occurs when the heart muscle is not adequately supplied with oxygen and nutrients due to atherosclerosis.

6. Shortness of breath. Atherosclerosis prevents adequate blood flow to the lungs, which can lead to shortness of breath.

7. Fatigue. Atherosclerosis causes the heart to work harder to pump enough blood to the body. This can cause heart fatigue and weakness.

8. Leg pain. Atherosclerosis can affect the arteries in the legs, causing leg pain and difficulty walking.

Diagnostic methods. Computed tomography (CT) and magnetic resonance imaging (MRI) are highly effective methods for indirect examination of the heart and large blood vessels. They can produce images of both consecutive and longitudinal sections without contrast and with the administration of a contrast agent. CT and MRI are used to diagnose aneurysms (bulging or bulging of an artery due to weakening) , narrowing, and complete occlusion of the aorta and its branches.

Radiography – X-rays of the chest in the left lateral, left anterior oblique, and frontal views can detect calcium (Ca) deposits and aneurysms.

The following indicators are determined using laboratory and instrumental examinations:

- Serum cholesterol (normal <5.2 mmol/l or <200 mg/dl) and total triglycerides (normal <1.7 mmol/l or 130 mg/dl);

- Indicator of individual classes of lipoproteins;

- Determination of the atherogenic coefficient.

Prevention and treatment of atherosclerosis. Treatment of the disease is carried out comprehensively, without drugs and in combination with drugs, under the supervision of a doctor. Eliminating risk factors that lead to atherosclerosis includes:

✓ An alternative diet aimed at reducing excess body weight and balancing lipid metabolism disorders;

✓ Giving up on greed;

✓ Sufficient physical activity;

✓ Avoid drinking alcohol;

✓ Eliminate negative mental influences as much as possible.

Non-drug treatment. It is advisable to recommend to patients the following 7 "golden" rules of diet, recommended by a group of experts from the European Society and necessary for the correction of lipid metabolism disorders:

➢ Reduce the amount of fat consumed (up to 25-30% of the total energy of the diet).

➢ Strictly limit the intake of products high in saturated fatty acids (animal fats, butter, cream, eggs) (up to 7-10% of the total energy of the diet).

➢ Increase consumption of foods rich in polyunsaturated fatty acids (peanut, olive, sunflower and corn oils, fish, poultry and seafood). They reduce the level of lipids in the blood and therefore should constitute 10-15% of the total energy of the patient's diet.

➢ Increase the consumption of fiber-rich foods and complex carbohydrates (whole fruits, vegetables, greens, and grains). In the recommended diets, carbohydrates should account for 55-60% of total energy. Sharply limit or

completely avoid easily digestible simple carbohydrates, which are found in confectionery (sugar, jam, candy, honey, etc.).

➢ Cooking dishes in vegetable oil;

➢ Sharply reduce the consumption of foods rich in cholesterol;

➢ Limit the amount of table salt in food (up to 3-5 g per day).

The daily diet should contain 90-100 g of protein, 65-70 g of fat (1/3 of which should be vegetable oil), 350-400 g of carbohydrates (30 g of which should be simple carbohydrates), and the energy value should be 2400-2500 kcal (2000 kcal in case of obesity). It is recommended to cook food by boiling, stewing or steaming.

Drug treatment. If a hypolipidemic (blood lipid-lowering) diet, physical exercise, and weight loss for 6 months do not bring blood lipid levels back to normal, drug treatment is recommended.

In conclusion, a person should not be indifferent to their health and, in order to prevent disease, strictly adhere to a healthy lifestyle, regularly engage in sports, follow proper nutrition, get rid of excess weight, and eliminate various harmful habits.

Conclusion

Atherosclerosis is not only a common but also a serious cardiovascular disease, the roots of which begin in adolescence. The gradual development of the disease and the absence of obvious clinical symptoms in the early stages make it especially dangerous. Studies show that the prevalence of atherosclerosis among young people is increasing sharply due to factors such as modern lifestyle changes - unhealthy diet, physical inactivity, obesity, smoking and stress. Most of these factors are preventable risk factors. Prevention is a much more effective and cost-effective way to combat atherosclerosis than treatment. The formation of a healthy lifestyle - proper nutrition, regular physical activity, giving up bad habits, weight control and stress management - is the main key to preventing the disease. Also, educating young people in the field of health and conducting regular medical examinations is important for early detection and prevention of atherosclerosis. It is essential that

every young person understands their responsibility for their future health and takes active steps to maintain it.

In conclusion, to effectively combat atherosclerosis, it is necessary to implement comprehensive measures to promote and implement a healthy lifestyle among all members of society, especially young people. Only in this way can the prevalence of cardiovascular diseases be significantly reduced and the health of the population improved.

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