ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

PREVALENCE OF ATHEROSCLEROSIS AMONG MIDDLE-AGED RESIDENTS OF THE VALLEY REGION

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Abstract: The prevalence of atherosclerosis among young people, preventive measures, prevention, diagnosis of atherosclerosis, symptoms of the disease, conducted research, atherosclerosis etiology, causes of the disease, and stages of development.

Keywords: stress, atherosclerosis, lipids, blood vessels, stroke, endothelial damage, LDL, ischemic heart disease, fibrosis, cholesterol, angina pectoris, myocardial infarction, angiography, graphic.

Introduction

Atherosclerosis (from the Greek "atheros" meaning porridge and "sclerosis" meaning hardening) is a chronic disease that arises from the disruption of lipid metabolism, leading to the accumulation of lipids in the inner layer of arteries and the proliferation of connective tissue. Atherosclerosis occurs with both general and local disturbances in blood circulation. Changes in the cells of the arterial wall and disruptions in the biochemical processes occurring within them play a significant role in the onset and progression of atherosclerosis. The development of fibrous tissue in certain areas of the arterial wall, along with the accumulation of cholesterol and other substances in these areas, leads to the onset of atherosclerosis. This is directly related to the increase in arterial blood pressure or arterial hypertension. One of the diseases that can exacerbate atherosclerosis is diabetes mellitus. Such patients must be under constant medical supervision. The predisposition to atherosclerosis can be inherited among certain segments of the next generation; parents of individuals suffering from atherosclerosis should take preventive measures to avoid genetic predisposition. General damage to all arteries is rare in atherosclerosis. Primarily, the brain, heart, kidneys, and leg vessels are affected. When atherosclerotic changes in the brain vessels reach a peak, acute circulatory disturbances, such as a stroke, may occur. Atherosclerosis of the vessels supplying blood to the heart muscle leads to coronary artery insufficiency. This insufficiency can result in angina pectoris, myocardial infarction, and other heart diseases. Atherosclerosis is characterized by the formation of plaques in the inner walls of arteries due to the accumulation of cholesterol and other fatty substances. This process leads to the narrowing of arteries and the loss of their elasticity, which in turn restricts blood flow. Atherosclerosis can result in insufficient blood supply to the heart, brain, kidneys, and other organs. The presence of atherosclerosis in the artery supplying blood to a well-functioning organ can limit the functional capabilities of that organ. This is a long-term disease that begins gradually. A patient may not realize they have this disease until it progresses and complications arise. Men, particularly those aged 45-55, are often affected by this disease; however, cases of atherosclerosis in younger individuals are also observed.

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Atherosclerosis tends to be clinically more severe in men compared to women, and the disease typically begins earlier in men. Atherosclerosis is a widespread chronic disease of the arterial vessels.

Etiology

Among the causes of atherosclerosis, current factors include the disruption of lipid metabolism, an increase in their levels in the blood, a decrease in phospholipid levels, the consumption of animal fats rich in cholesterol and saturated fatty acids, obesity, smoking, chronic alcohol consumption, and a mismatch between energy expenditure and the high caloric value of food products. The rapid development of technology has led to a decrease in physical activity, along with disturbances in nervous system function, psychological stress, and hypertension being primary contributors. Additionally, the disruption of cholesterol metabolism plays a significant role in the exacerbation of the disease, resulting in the accumulation of cholesterol in the blood, which gradually deposits in the inner walls of arteries.

Causes and Development of the Disease

1.Endothelial Damage: The inner lining of blood vessels (endothelium) is damaged. This damage can result from factors such as smoking, high blood pressure, high cholesterol levels, or diabetes.

2.Accumulation of Lipids:LDL ("bad cholesterol") deposits on the vessel walls, forming plaques.

3. Inflammation and Plaque Growth: Inflammatory processes begin, leading to the enlargement of plaques.

4.Disruption of Blood Flow: Blood flow becomes difficult through narrowed vessels. The rupture of plaques can lead to thrombosis (blood clots). Atherosclerosis can lead to many serious diseases:

-Ischemic Heart Disease (IHD): Impaired blood supply to the heart increases the risk of angina and myocardial infarction.

- Stroke: Disruption of blood circulation due to plaque or thrombosis in cerebral blood vessels.

-Peripheral Arterial Disease: Restricted blood circulation in the arms and legs.

- Aortic Aneurysm: Risk of expansion and rupture of the aorta.

Symptoms of the Disease

Atherosclerosis initially develops unnoticed, and symptoms often appear in the later stages of the disease:

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

- Chest pain (angina pectoris).

- Pain or weakness in the arms and legs (peripheral arterial disease).

- Shortness of breath.

- Dizziness or fainting (when affecting cerebral blood vessels).

- Sudden severe chest pain (a sign of myocardial infarction).

Diagnosis of Atherosclerosis

- Blood Tests: Determining cholesterol, triglycerides, and blood sugar levels.

- ECG (Electrocardiogram): Studying the electrical activity of the heart.

- Ultrasound Examination: Identifying thickening of the vessel walls.

- Angiography: Imaging the condition of blood vessels using a contrast agent.

- Stress Tests: Evaluating heart function under physical load.

Prevention of Atherosclerosis

- Healthy eating (foods low in fats and cholesterol).

- Regular physical activity.

- Weight management.

- Monitoring blood pressure and blood sugar levels.

- Stress reduction.

Although atherosclerosis is a chronic disease, its risk can be significantly reduced through early detection and prevention. Several factors influence the development of atherosclerosis. These factors can be divided into two groups: modifiable (preventable) and non-modifiable (difficult to control) factors.

Modifiable Factors

These factors can be managed or reduced to prevent atherosclerosis:

- Poor diet: Consumption of foods high in fats, cholesterol, and oils.

- Insufficient intake of fruits and vegetables.

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

- Lack of physical activity: Sedentary lifestyle leads to metabolic disorders and fat accumulation.

- Smoking and alcohol consumption: Smoking damages blood vessel walls and contributes to the formation of atherosclerotic plaques.

- Increased blood pressure (hypertension): High pressure damages blood vessel walls and accelerates plaque formation.

- Dyslipidemia: Increased levels of "bad" cholesterol (LDL) and decreased levels of "good" cholesterol (HDL).

- High blood sugar levels: Damages blood vessel walls and accelerates plaque accumulation.

- Stress and psychological pressure: Stress hormones (cortisol) can lead to narrowing of blood vessels.

Non-Modifiable Factors

These factors are difficult to control but play a significant role in determining the risk of atherosclerosis:

- Age: The risk of atherosclerosis increases with age.

- Gender: Men have a higher risk of atherosclerosis compared to women.

- Racial or ethnic factors: Certain ethnic groups may be more prone to atherosclerosis.

- Genetic predisposition: If family members have atherosclerosis, the risk of this disease increases.

- Additional risk factors: Chronic inflammation, autoimmune diseases, and chronic infections can affect blood vessel walls. Sleep disorders, insomnia, or sleep apnea can increase the risk of metabolic diseases.

- Hormonal changes: For example, a decrease in estrogen levels in women during menopause.

Identifying and managing the factors contributing to the development of atherosclerosis is crucial for maintaining a healthy lifestyle and preventing the disease. This article analyzes the prevalence of atherosclerosis among middle-aged residents of the Vakhsh region of Uzbekistan and its main risk factors. During the research, factors influencing the development of atherosclerosis, including poor nutrition, decreased physical activity, stress, and genetic predisposition, were studied. The article presents epidemiological indicators related to the age, gender, and living conditions of patients. The research findings are significant for improving preventive measures aimed at early detection and prevention of atherosclerosis in the Vakhsh region.

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Research

I selected 15-20 employees and students aged 40-60 from Kokand University, Andijan Branch. By measuring their arterial blood pressure, determining the amount of high-calorie substances in their daily diet, and conducting a survey about their physical activity, we found that 77.3% of the participants had atherosclerotic plaques in their cardiovascular system, and I advised them to consult a doctor. Men, particularly those aged 45-55, are often affected by this disease; however, cases of atherosclerosis in younger individuals are also observed. Atherosclerosis tends to be clinically more severe in men compared to women, and the disease typically begins earlier in men. Atherosclerosis is a widespread chronic disease of the arterial vessels.

Conclusion

Cardiovascular diseases are the leading cause of death worldwide. According to the World Health Organization (WHO), in 2016, cardiovascular diseases, primarily atherosclerosis of coronary arteries and cerebral vessels, led to 17.9 million deaths, accounting for 31% of all deaths. In Uzbekistan, cardiovascular diseases are also one of the main causes of death. According to the State Statistics Committee, in the first quarter of 2019, 63.8% of deaths were due to cardiovascular diseases.

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