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PERSPECTIVE

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Symptoms and Pathophysiology of Arteriosclerosis

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Description

The primary cause of coronary artery disease (CAD) and stroke is atherosclerosis, which has various hereditary and environmental contributors. A large number of genetic and non-genetic risk factors for CAD have been found through genetic-epidemiologic investigations. Those studies, however, show that family history is the most important independent risk factor. Arteriosclerosis occurs when the blood veins (arteries) that transport oxygen and nutrients from the heart to the rest of the body thicken and stiffen, occasionally restricting blood flow to organs and tissues. Healthy arteries are elastic and flexible. However, the artery walls can harden over time, a phenomenon known as artery hardening.

Signs and symptoms

The signs and symptoms of arteriosclerosis change based on the vessel affected by the condition. When cerebral or ocular vessels are affected, as in cerebrovascular accidents or transient ischemic strokes, signs and symptoms may include abrupt weakness, facial or lower limb numbness, confusion, difficulties understanding speech, and vision impairments. Symptoms and indicators of coronary artery disease may include chest discomfort.

Pathophysiology

Arteriosclerosis lesions arise when the intima of the artery wall begins to fill with cellular wastes. Once these begin to mature, they can develop various kinds of arteriosclerosis. They are connected with common characteristics such as arterial vessel stiffening, arterial wall thickening, and the degenerative nature of the disease. Arteriolosclerosis, as opposed to atherosclerosis, is a sclerosis that exclusively affects the small arteries and arterioles that transport nutrients and blood to the cells. Atherosclerosis is the shortening of arteries caused by an accumulation of plaque inside the arteries, which is often composed of cholesterol, fatty substances, cellular waste products, calcium, and fibrin. This affects large and medium-sized arteries, but its location differs from person to person.

Monckeberg's arteriosclerosis, also known as medial calcific sclerosis, is most usually found in the arteries of the extremities in the elderly. The term hyperplastic arteriosclerosis refers to arteriosclerosis that affects the big and medium arteries. Hyaline arteriosclerosis, also known as arterial hyalinosis and arteriolar hyalinosis, refers to disorders generated by homogenous hyaline deposition with in small arteries and arterioles.

Treatment

Therapy is often delivered in the form of prophylactic measures. Medical therapy, such as drugs to address excessive cholesterol, high blood pressure, and antiplatelet medications, is frequently administered to assist avoid arteriosclerosis for underlying diseases. Lifestyle adjustments such as increased physical activity, quitting smoking, and limiting alcohol use are also recommended. There are several forms of surgery.

Angioplasty and stent placement: A catheter is initially put into the blocked or narrowed artery, followed by another catheter with a deflated balloon that is pushed through the use of the catheter into the narrowed portion. The balloon is then inflated, pushing the deposits back against the arterial walls, and a mesh tube is typically left in place to prevent the artery from tightening again.

Coronary artery bypass surgery: This operation establishes a new channel for blood to circulate to the

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heart. To allow bypass, the surgeon joins a healthy vein to the coronary artery slightly above and below the obstruction.

Endarterectomy: This is the overall process for surgically removing plaque from an artery that has constricted or become blocked.

Thrombolytic therapy: This is a treatment that uses intravenous clot-dissolving medication to break up masses of plaque inside the arteries.