

Practique Clinique et Investigation

The Theory of VI Ermoshkin Points to the Mechanism of Atherosclerosis in Humans

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Starting from September 2020, Russian physicist Vladimir Ermoshkin published several articles on the possible mechanism of atherosclerosis in an erect person [1-3]. It is the primary mechanism that affects the cardiovascular system of a person throughout life.

Thanks to the New Theory, it was possible to combine most of the previous theories of atherosclerosis, which now, apparently, should be called "concomitant factors" or "possible sequences of events", rather than theories. Here, apparently, is an incomplete list of "theories" for the last 200 years: the theory of inflammation by Rayer in 1825, the theory of lipoprotein infiltration, the neuro-metabolic theory by Myasnikov LL in 1965, autoimmune, monoclonal, viral, peroxide, genetic, chlamydia, hormonal, hypercholesterolemia by Nobel prize, Goldstein J and Brown M in 1985, the theory of endothelial dysfunction by Nobel prize, Furchgott RF, Ignarro LJ and Murad F in 1988.

The author of the new theory showed that the change in the walls of the arteries is provoked by periodic leaks through open anastomoses of arterial blood from the arteries directly into the veins. Apparently, we can assume that the normal average volume of arterial blood in a particular adult is an individual constant. The opening of the lumen of natural anastomoses occurs due to stressful situations with increased blood pressure. As a result, frequent stress leads to regular loss of arterial blood volume. Gravity also contributes to the loss of arterial blood volume, especially in case of hypodynamia.

On the other hand, due to physical exertion, breathing movements with a large amplitude, and night rest, these losses are mainly compensated by additional blood pumping through the small circle of blood circulation.

Question: What happens when there is a lack of arterial blood volume? There is a spasm of the arteries, because there is a strict coordination of the volume of the arterial bed with the volume of arterial blood. If the internal volume of the bed decreases, then the internal surface of the arteries or the area of the endothelium decreases. All this leads to a decrease in the gaps between the cells of the single - layer endothelium, and with a critical decrease in the diameter of the arteries, to shear deformations of the endothelial cells, to the separation of the endothelial cells from the media layer, the nutrition of many cells is disrupted. Some cells are temporarily placed in several layers, compressed. In medicine, this is called "desquamation"

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of endothelial cells. One of the proofs of this is: total atherosclerosis during forced starvation and stress (for example, during the “Leningrad blockade”).

Since the rigid adventitia holds the outer diameter of the arteries, and the inner layer of the arteries shifts to the axis of the vessel, a negative pressure is created in the inner layers of the arteries wall. All this creates conditions for the infiltration of cholesterol, calcium and other substances from the main blood flow into the media areas of wall. In other words, there is a "treatment" of the walls of the arteries.

The above mechanism contributes to a widespread increase in the stiffness of the arteries, the growth of plaques in the most vulnerable places of the arteries in bends, in bifurcation zones. Additionally, hydrostatic forces in the sitting or standing position create the effect of compression of vertical vessels and separation of the endothelium from the media, primarily in the upper parts of these arteries, for example, in the area of the aortic arch, the effect of "aortic dissection" may occur.

How to protect yourself from atherosclerosis? Much has been said about nutrition and lifestyle. According to this theory, it is necessary to find a way to monitor the loss of arterial blood and find a method for regularly replenishing the volume of arterial blood. For example, it is possible with the help of micro intra-arterial transfusion of own venous blood or other solutions. In the meantime, only prevention: getting rid of stress, physical activity, breathing practices, etc.

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