

## Heart Failure: Correction of Old Mistakes of the Mechanism of Its Origin

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### Aim and Objective

The problem of heart failure is more urgent than ever in the whole world. The opinions of the researchers are contradictory. This article presents an unexpected conclusion about the mechanism of heart failure. In most cases, especially at a young age, the myocardium is "not to blame" for violations of capillary circulation in some organs.

### Methods

An examination of the literature, participation in conferences and discussions with Russian leading cardiologists.

### Results

Looking ahead, we will say that the conclusions from our research will be unexpected. According to the old theory, heart failure (HF) can be chronic (CHF) or acute (AHF). This terminology was adopted the 12<sup>th</sup> Congress of Physicians in 1935, more than 80 years ago. Up until now, the disease has been considered incurable and with an unknown cause, or with unknown etiology.

With current medical theory, CHF is a complex disorder with specific symptoms (dyspnea, fatigue, decreased physical activity, edema, heart rhythm and palpitations), which are related to inadequate perfusion of organs and tissues at rest or during exercise. Another characteristic feature of chronic heart failure is fluid retention in the body. Most often, edema begins in the lower extremities, pelvic organs and gradually rise up the body up to the heart and lungs.

Currently, the primary mechanism HF is considered the deterioration of the heart's ability to fill or empty the chambers due to damage of the myocardium, including heart attacks while with concomitant imbalance neurohormonal systems. As a rule, HF ejection fraction is reduced to 30-45%, with the required fraction of 50-65%.

The treatment of heart failure is ineffective. There is a high death rate from heart failure after diagnosis. Symptomatic heart failure occurs in 1.8-2.0% of people. Among people older than 65 years, the frequency of occurrence of heart failure is 6-10%. After heart failure, the five-year survival of patients with heart failure less than 50% and the risk of sudden death in CHF is 5 times higher than in the general population.

Over the past few decades thousands of articles had written listing the following causes of HF: myocardial infarction, cardiac ischemia, atherosclerosis, high arterial blood pressure (BP), disease of the heart valves, inflammatory and non-inflammatory disease of the myocardium, congenital heart defects, lung disease, alcohol abuse, drug reception, addiction to tobacco.

Thus, HF is widespread, its mechanism is unknown, the treatment of symptomatic, effective treatment of heart failure has not found and there is a high mortality rate.

The main conclusion of the etiology HF: heart failure can be a major manifestation of virtually all heart disease [1].

In my opinion, it is obvious that heart failure, if there was a heart attack, will take place. But from the point of view of common sense there must be an explanation to the phenomenon of heart failure in cases when there is no infarction. Let's look at this problem from a different angle.

The new theory of cardiovascular disease is based on the fact, that the arterial and venous pools may periodically be linked by large anastomoses (natural shunts) [2-6]. In normal conditions, arteriovenous anastomoses (AVA) are closed, but during periods of increased physical and psychological stress due to increased blood pressure, they can open. The most common pathological role extended AVA manifests in the liver area. More often, the pathological role of enlarged AVA is manifested in the region of the liver, for example, between the superior mesenteric artery and portal vein [7]. This leads to a reset of the arterial blood directly into veins. Because of this, some groups of working cells are left without sufficient food and O<sub>2</sub>. Under certain conditions, the AVA may be open too long. As a result, blood high pressure penetrates into the venous bed and gradually fills it. Usually first affecting the liver and vessels.

Further, high venous pressure arises not only in the vena cava and after a while in the right atrium zone, but also in other large veins and, spreading downwards, reaches small veins. Much depends on the location of the network of venous vessels, their diameter, on the location of the AVA (cascade AVA), on the way of life and on the prevailing posture of man.

Of course, a substantial pressure increase in small venules and veins occurs over a long period. In the first stage, venous valves counteract the pathological process, but after some time the venous valves begin to break down. This is due to the necessary counteraction of the total extreme pressure of 60-70 mmHg and above. The total pressure consists of the diastolic blood pressure and the hydrostatic pressure of the liquid column located above the valve. Due to the lack of pressure difference between arterioles and venules capillary circulation slows in some organs, or even stops. Lymph also stagnates.

In my opinion, no obstacles in the form of primary blood clots, tumor embolism increase the pressure in the veins near the venules. On the contrary, it is the additional pressure with open AVA, transmitted through the veins, slows the capillary circulation and creates thrombi [7]. Over time, because of the permeability of vascular veins occur swelling of tissues, varicose veins, venous thrombosis. Cardiology has made a mistake by confusing the cause and effect. If proper prevention is not provided, the process of the disease is enhanced and further diseases in the small pelvis, lower limbs and others, including some types of cancer will occur.

Yes, of cancer. There are studies which have shown that the average time of the first heart attack to cancer is equal to only 2.8 years [8]. Another study shows 70% increase in the risk of cancer in patients for three years after a diagnosis of heart failure [8]. Thus, the incidence of heart failure and cancer rigidly connected and this connection is probably due to the stagnation of blood in the veins due to open AVA!

Thus, according to the new theory, the majority of cardiovascular diseases occur due to malfunction of the AVA, due to venous plethora. Extras: There are arrhythmia, because pulse waves running through a crowded vena cava, with mechanical and electrical excitation arrhythmic cardiomyocytes [2,6].

Thus, in my opinion, the following provisions must be corrected in cardiology.

1. A prolonged increase in venous pressure, a decrease in the pressure gradient between arterioles and venules can block capillary circulation and lead to edema, thrombosis and necrosis [9,10].

2. "Inadequate perfusion of organs and tissues at rest or with exercise" in HF is mainly the result of not weakness of the myocardium, but the result of the work of open AVA. All this, of course, leads to a stasis of capillary circulation in some organs, to a slowing of perfusion.

3. Increased venous pressure in the vena cava and some veins of smaller caliber primarily because of the open AVA. Diseases of the heart valves and the venous valves are usually secondary.

4. "Apnea" occurs due to swelling of the lung tissue. Lungs not only have vessels of the pulmonary circulation, but also arteries and veins of the systemic circulation. At night, in a horizontal position, the excess venous pressure of a great circle reaches the lungs, the fluid penetrates through the walls of the vessels, because pressure in all human organs in the supine position are almost equal footing in relation to the Earth's gravity [3].

5. Reducing or maintaining ventricular ejection fraction of the heart, especially at the initial stage of development of heart failure, often does nothing. The problem of hypertension leads to dilation of the heart cavities. The statements regarding the impact of ejection fractions confirmed by the data published in the British Heart Foundation online magazine [8]. «Some people with heart failure have a normal ejection fraction, so ejection fraction is used alongside other tests to help diagnose heart failure». Additionally, there is information in the American Heart Association online journal [11]: «A significant proportion of patients with heart failure happen to have a normal ventricular ejection fraction at ECG during examination».

6. The occurrence and rate of development of heart failure is also influenced by additional human factors, including lifestyle, education

level, physical activity, sedentary work, proper diet, special exercises and genetics.

7. Arrhythmia sessions can be produce by mechanically pulses [120]. There was an explanation for the high values of pairwise correlations between the majority of cardiovascular diseases: cardiac arrhythmias, coronary artery disease, venous plethora in the pelvic region and legs, liver fibrosis, blood vessels and heart. Also correlated with CVD and some types of cancer. The reason is "wrong" working AVAs, who are in the "open" position for too long and, unfortunately, are deep inside the human body.

## Conclusion

It is necessary to draw the attention of medicine that it is moving in the wrong direction in the theoretical plan.

In my opinion, it is necessary to correct blatant mistakes in the field of cardiology. These errors affect the effectiveness of cardiology for more than 50-100 years. It is necessary to check and discuss new proposals.

Waiting a new era is beginning in cardiology.

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