

Short Communication

Venous congestion due to large arteriovenous anastomoses

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Abstract

Aims: Mortality from cardiovascular disease (CVD) is very high. Medicine is considered that most of heart diseases have unknown etiology and mechanism. Made is an attempt to analyze the mechanism of the CVD. Why does theoretical cardiology have such a low success rate during more than 100 years? What is the true reason, for example, venous plethora, hemorrhoids, prostatitis, endometriosis and some others? How to prevent hypertension?

Methods: Search in the literature, participation in medical conferences in Russia (2012–2016), Australia, Brisbane, Arrhythmia-2016, correspondence with leading Russian cardiologists, publishing of my original articles.

Results: My group succeeded in demonstrating the fact that the modern theoretical cardiology has significant errors. With the use of Cardiocode device our group managed to prove the presence of large arteriovenous anastomoses (AVA) in quite healthy individuals. Sudden opening of AVA lumen leads to a sharp decrease in arterial pressure. When closing the AVA, usually in a few seconds, arterial pressure increases again. It seems that such manipulations of AVA are provided by nature to protect the vessels of peak values of arterial pressure. It becomes clear that the long-term incorrect performance of AVA, especially in case of unhealthy lifestyle, usually leads to two big problems. The first problem is a periodic disorder in heart rhythm, sometimes with lethal outcome, caused by heart excitation by means of pulse mechanical waves which pass along the vessels' contour and return to heart. The second problem: metabolism disorders caused by long-term increase in both system and local venous pressure. An attempt to substantiate the reasons of venous hyperemia and small pelvis organs diseases in humans is made herein.

Conclusions: I think that taking into account a great experience accumulated by modern official medicine and a great number of clinical studies and using my theory it will be possible to make a breakthrough in cardiovascular disease treatment including venous hyperemia.

Introduction

Nowadays the problem of prevention and treatment of CVD is very sharp. Why are the reasons of cardiovascular diseases and cases of sudden cardiac death so topical now? Why do theoreticians-cardiologists not have even one Nobel award for the last 116 years? Only 2 researchers have awards in cardiology. The first awardee was an expert in chemistry and pharmaceuticals Eindhoven who in 1924 received an award for his old, made as far back as in 1887, invention of ECG. The second awardee was Luis Navarro, pharmacist, Herbalife company expert, who in 1998 described the role of nitric oxide as a signal molecule in cardiovascular system regulation. Thus, achievements of theoretical cardiology for such a long period of time are very few. For example, modern medicine considered the problem of cardiac arrhythmia to be hidden in microlevel: in micro- and macro-reentries, ectopic foci. But according to my new theory the nature of rhythm disorders consists in AVAs opening, vena cava overfilling and concentration of pulse mechanic waves on myocardium. The further studies demonstrate that increased venous pressure leads to many CVD very soon. The given article is devoted to the problem of venous hyperemia as the most important nowadays.

Results

Some cardiologists doubt that the performance of small invisible arteriovenous anastomoses (AVA) may lead to many diseases. But supporters of the new theory there is always the next question to such opponents: what mechanism except the effect of hydrostatic pressure can increase the venous pressure in portal vein up to critical values of 200 - 600 mm H₂O and higher? It is well-known that the human organism does not any other powerful mechanisms of pressure

increase except the pressure generated by the aorta. At the same time the pressure in a healthy individual's venules is about 70 - 130 mm H₂O (5-10 mm Hg).

It should be noted that the study of functions of the AVA began long ago [1-3]. The official medicine it is believed that the main role of small subcutaneous AVA - this adjustment is adequate heat exchange with the environment [4-6]. On the other hand, with an increase in local blood pressure observed increased growth of collateral vessels in organs other anastomoses. In addition it is believed that the venous pressure such as portal system may rise due to the presence of certain "obstacles" venous flow. According to the new theory of large AVA can be periodically opened and closed for the adjustment of local and general blood pressure, and that these manipulations lead to spikes in blood pressure.

As a rule, in this case the arterial pressure decreases and the venous one increases. These phenomena were proved by Cardiocode device [7,8]. Some observations prove that most often the functioning AVAs appear in the vessels near the liver [9,10]. Gaping AVAs, even if opened a little, may lead to venous pressure increase in many organs, including

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small pelvis.

As a rule, problems with AVAs occur in humans leading sedentary lifestyle, when physical activity is low. They also appear under great nervous and physical loads. When AVAs are opened the arterial blood with the pressure of about 30-60 mm Hg flows to the veins and mixes with the venous blood, it flows mainly upwards to the right atrium along the vena cava. At the same time the arterial blood volume decreases and the venous one increases. After passing the AVA the mixed blood flows to small veins too, i.e. retrogradely, to the direction where the fluid pressure is much lower (about 5...10 mm Hg), i.e. the small veins of some organs. Of course, these two flows are different in volumes of pumped fluid. The flow towards small veins and venules (mainly downwards) is much lower than the continuous flow towards heart (up the vena cava). Strictly speaking, the flow towards small veins may be called the "flow" only conditionally, as a matter of fact only the blocking pressure is created with seeping the fluid into the tissue space from overfilled veins. Such events lead to obstacle effect, to an effect of "hydraulic lock" firstly in the organs located lower than small pelvis and lower extremities and finally in lungs as lungs are located higher than AVA, on the same level with heart. Let us note that the temperature of the organs with blocked blood circulation decreases in time, venous wall stretch. In blocked segment the walls of small and medium size veins dilate.

These vessels even with the presence eventually of venous valves do not withstand high pressure, therefore, sooner or later the liquid passes into the extracellular space. Under the influence of the earth's gravity moves the liquid down and even occupies the free space between the bodies. Periodically there are cardiac arrhythmia due to the path of the pulse wave for intense vena cava and the mechanical pulse effects on the myocardium. There are edema, stasis, weight gain, "heart failure", varices, ascites [11-13].

On the other hand, due to decreased pressure gradient at opened AVAs the deceleration of capillar circulation between the arterioles and venules occurs, cells do not obtain nourishment, stagnated blood becomes denser, the lymph flow decelerates too, immune system weakens, viruses and parasites are activated. Let us note that retrograde flow of mixed blood along the veins occurs according to the laws of physics and not human physiology.

The cardiovascular system can't cope with the growing problems of venous though night's sleep in a horizontal position weakens some swelling and stagnation in the lower half of the body. But the morning after a long position of the body in a horizontal position swelling may occur in the upper half. Excessive venous blood and intercellular fluid can "move" into the lungs and trigger asthma attacks [14]. By the way, the increase in blood viscosity in the morning, apparently, can be explained by night deprotection small veins due to prolonged lack of harmful vertical pressure gradient, gradual involvement of the stagnant venous blood in large and small circulation.

Within a few years of a person, if it is not treated and lead an unhealthy lifestyle, can quickly occur several cardiovascular and related diseases. There is, so-called co-morbidity of diseases.

Let us ask ourselves a question. It is today in medicine topical question venous plethora in the pelvic organs? Yes, it is.

An official medicine considers the syndrome of pelvic congestion (hyperemia), pelvic pain syndrome [15-17]. This issue is widespread, but there is no specific data on the pelvic congestion syndrome prevalence nowadays. Due to high diversity of manifestations in

females this syndrome may be misdiagnosed as endometriosis, inflammatory disease of appendages (adnexitis), cystitis (vesica urinaria inflammation), bowel diseases and so on. According to some reports, up to 30-50% of females of 20-50 years age have such a syndrome but not all of them have such symptoms.

Let us note that in males the skin, tendon, fascia and muscles are stronger, they stretch less and perform more physical work, thus the problem of venous hyperemia in males is not so acute as in females. Nevertheless, significance of pelvic congestion cannot be overestimated when treating male genito-urinary diseases, prostatitis and chronic hemorrhoid.

The problem is very serious, the primary causes of pelvic congestion for official medicine remain unknown.

An official medicine considers that the development of venous hyperemia is genetically predetermined. Thus, replicability of pelvic congestion from generation to generation is observed in 50-70% of cases. First of all the following two factors are inherited: the venous wall capability to significant stretching and insufficient availability of valves in veins with their inherent anatomic inferiority. A certain role in the pelvic congestion development play the hormonal affects, the oestrogen level increase in blood which contributes to dilation of the venous vessels diameter in pelvis.

Now, taking into account the new knowledge on the causes of arrhythmia [18,19], on the causes of venous hyperemia, the pathologic role of anastomoses AVA [20,21], it is evident that in the near future possible is the breakthrough in interpretation of many cardiovascular diseases etiology including related to the venous pressure increase.

But appear other problems such as searching for AVA location, observation of incorrectly performing AVAs, how to treat gaping AVAs. Let us remind that opened AVAs contribute to the arterial pressure decrease and the venous pressure increase that sooner or later leads to many hard-to-cure diseases.

Recently, one more indirect proof of the plausibility of my proposed theory appeared. To know more about testing of the "revolutionary" method of struggle against hypertension read the reports [22,23]. The device ROX AV Coupler was used in the testing, it is developed by the American company ROX Medical. Tests were carried out in England in 2014-2015. This device is essentially an artificial implant (arteriovenous shunt) with a 4 mm diameter hole and a continuous throughput of about 800 ml/min. The shunt was placed between the iliac artery and the adjacent vein. Tests were conducted on hypertensive patients resistant to treatment drugs. Due to this method of treatment of resistant forms of hypertension it successfully showed that a reduction in systemic blood pressure by an average of 27/20 mm Hg occurred. Unfortunately, in the 2-9 months over the distal shunt, stagnation of venous blood and edemata appeared in 29% of cases, which is the same as what occurs in natural permanently opened anastomosis [10,19]. One may ask why arrhythmias occur in the open natural arteriovenous anastomoses [10,11], and not in the permanently opened ROX-shunt. The reason is, as stated by researchers, the implant method contributes to treatment of not only arrhythmias, but some other CVDs [24].

In my opinion, this occurs because the implant is made of solid material, which is significantly different from natural tissue of anastomoses, so the mechanical waves traveling along the walls of arteries are effectively reflected from foreign material and do not hit the vena cava wall. Thus, ROX Coupler reliably eliminates the cause of arrhythmias due to the impact of pulse waves. The ROX Coupler

implant, struggling against the effects of hypertension, reduces the blood pressure and thereby eliminates the reason for the opening and closing of natural AVA. We can assume that after the installation of ROX-shunt the large natural AVA are forced to be in the closed state permanently, and the heart, lungs and some large vessels have to work with the increased load. It is useless to pump some extra volume of blood from major arteries into the veins. This excess value of pumping is 800 ml/min or 16% of the norm in 5000 ml/min. In my opinion, this solution is not optimal. It is obvious that for hypertensive patient in the future it is needed to develop the implants with a variable diameter of shunt lumen, down to zero value of lumen, depending on the current blood pressure in the arteries. But it is still better to “use” the natural anastomoses given to us by nature, and for that it is necessary to lead a healthy lifestyle with daily moderate physical loads on muscles and cardiovascular system. Another confirmation of the fact that the mechanical impulses is suppressed heterogeneity of tissue or a surgical suture is statistics on the results of greater efficiency bicaval (compared to biatrial) technique in heart transplant [12].

Conclusions

1. It seems that revealed is one of the greatest secrets of medicine. It appears that many widespread CVD have the same cause and mechanism of development.

2. The main cause of many cardiovascular diseases is opened and not closing for a long time arteriovenous anastomoses (AVA) which lead to blocking the circulation in some organs and venous blood stagnation, first of all, in legs and pelvis area. The pelvic congestion syndrome (hyperemia) и pelvic pain syndrome occur.

3. The new theory of CVD has found and continue finding the logic interpretation of not only separate clinical cases of cardiovascular diseases but many related diseases considered to be separate nosological units before.

4. The situation occurring in the cardiovascular system with opened arteriovenous anastomoses (AVA) is similar to pumping the ball with a small gape in it. In this case the ball will never be pumped. The same happens with the heart at opened AVAs. In this case the heart ejects sufficient volume of blood into the aorta, in the vena cava the flow is sufficient too, the heart works excessively but irrationally as a portion of blood (usually the denser one) continues remaining not involved in circulation circles and locating outside the flow in peripheral veins. It harms the whole organism. The arterial blood volume decreases to the critical level, and the venous one excessively increases.

It seems that the problem of search and treatment of the opened AVAs is very difficult. Special studies are required here.

5. This theory should be still seen as a promising hypothesis, because my research is not generally accepted yet. I believe and hope that the cause of many cardiovascular diseases with unknown etiology becomes clearer. At least the cause of heart premature beats and paroxysmal tachycardias looks quite reasonable in the framework of my new theory.

6. A key element of the forthcoming research and experiments is a study of performance of the large arteriovenous anastomoses (AVAs) located mainly near the liver, portal and hepatic veins, liver and mesenteric arteries, vena cava. The key to treatment is apparently a thin adjustment of the AVAs performance, detection and tracking of the retrograde venous blood movement.

7. It is natural that physical activity throughout the day, adequate sleeping time, special breathing exercises for involving the stagnant venous blood into the systemic circulation may be advised to prevent the cardiovascular disease.

8. It is necessary to carry out a number of round table discussions and experiments to prove and develop the new theory, start the new treatment methods development. The present article author is ready to cooperate! Take care of yourselves!

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