

Hypothesis of Night and Morning Rises in Blood Pressure

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Purpose

Official medicine cannot convincingly explain the mechanism of the “causeless” sharp rise in blood pressure in a significant percentage of people at night and in the morning, as well as the mechanism of hypertensive crises.

Method

The study of numerous sources of information about the causes of hypertension on the Internet. Discussion of proposed ideas at medical conferences.

Result

The question of the causes and associated factors of hypertension is relevant for many people. On the mechanism of nocturnal hypertension, few scientific papers with evidence.

Official medicine believes that the vegetative nervous system controls the change of rest and wakefulness in the human body. Her disorders lead to pathological changes in the cardiovascular system, causing an increase or decrease in blood pressure (BP). In a healthy person, during a night's sleep, blood pressure decreases, and in the morning after waking up and before about 9 - 10 hours, there is an increase in blood pressure. At this time the body is preparing for works. Such pressure fluctuations are associated with physical and psychological stress occurring during the day. At night, during sleep, the parasympathetic system is activated, thereby reducing blood pressure.

Doctors say that in some people the body is disturbed at night, therefore, sympathetic activity increases, suppressing the parasympathetic, and the patient develops a nightly increase in pressure. But specifically, which violations most often occur in the body of the patients doctor are not reported. Based on statistics, a hypertensive crisis can begin from the patient's words at an “empty” place, i.e. for no apparent reason.

It is believed that hypertension is a rather difficult problem, as it is not always possible to record an increase in blood pressure at night. Not every patient after the appearance of characteristic symptoms tends to turn to a cardiologist. In this regard, the patient is diagnosed even when irreversible disturbances occur in the body.

Medical practice has shown that arterial hypertension, appearing during the night, is most dangerous for such complications as stroke, acute myocardial infarction, the occurrence of unstable angina, cardiac arrhythmias, hypertensive crisis, and instant death of a person. At night, waking up from the surges of hypertension, a person feels a strong fear, and this is natural for a normal person.

It should be noted that hypertensive crises and elevations of blood pressure in almost all medical articles are associated with osteochondrosis, i.e. with damage to the cervical spine, with hernia or disc protrusion. Another important circumstance: the patient with hypertension is almost always prescribed a relaxing massage of the neck area, the actual areas of the body near the cervical spine. Remember these practical conclusions of doctors! They fall into the core of the proposed hypothesis!

Recall that a little earlier, our group of researchers was able to describe a possible mechanism for the appearance of morning headache [1]. The same mechanism seems to be responsible for hypertensive crises.

So, under the influence of stressful physical or psychological situations in the daytime or in the evening a person may experience adequate increases in blood pressure due to sympathetic activity. In a healthy person, these situations leave no trace, because he has a well-trained cardiovascular system. Usually, during an increase in blood pressure, large arteriovenous anastomoses (AVA) open [2], part of the arterial blood flows into the veins, and the blood pressure drops, and after such adjustment the anastomoses close. The New Theory of CVD and Cancer is based on this effect [3-15].

But for older or less trained people who lead a sedentary lifestyle, AVA can close late, long delay, or not close completely. In addition, the force of gravity of the Earth contributes to the accumulation of additional volumes of venous blood in gravity traps located in the lower half of the body: in the legs, in many pelvic organs. In a healthy person, such accumulation does not occur, because during the day he does not have long pauses without physical exertion, besides, the respiratory diaphragm during training (during upward movements of the diaphragm) helps to pump out venous blood from traps. In physically passive people, pathology does not occur immediately, but after several years, because at first, venous valves prevent the accumulation of venous blood in the lower half of the body. But these valves are not eternal and under the influence of high venous pressure in sitting or standing, they collapse. They are destroyed because of prolonged sitting or standing in front of the TV, in front of the computer, in front of the lathe or sewing machine, in front of the cash register in the store, etc. In this case, the venous pressure at the exit of the venules due to open AVA isn't equal of optimal values in a healthy person as 12 - 18 mm Hg. The venous pressure can reach a record 40 - 60 mm Hg. With such indicators of pressure, blood circulation stops. The pressure difference between arterioles, where the pressure is same about 40 - 60 mm Hg, and the venules becomes close to zero. The observed result is swelling of the ankles, cold feet and hands, bowel cramps, the development of many diseases.

With a nightly rest in a horizontal position, the venous pressure in all veins evens out, gravity does not contribute to the concentration of venous blood in the traps. Venous blood accumulated during the day from traps tends to be more evenly distributed throughout all organs, for example, blood circulation is restored in the limbs, and legs and arms become warm.

And now let us turn to the main question, to the description of the hypothesis of night and morning rises in blood pressure.

So, in the horizontal position of the body there is a redistribution of venous blood, its flow from gravity traps to all organs. Not only the venous blood moves to the upper half of the body, but the superfluous intercellular fluid is also redistributed. In other words, fluids begin to "flow" from the lower half of the body to the upper. Of course, venous blood does not flow instantly, but gradually over several hours, because most of the stagnant blood is in the small veins and venules. Recall that the capacities of the right and left ventricles are usually the same, so it takes time to compensate for the loss of arterial blood. In addition, it is necessary to take into account that the process of overflow is combined with the dynamic process of blood movement along the large and small circles of blood circulation.

Note here that the size of the veins in the lower half of the human body is gradually increasing and increasing every year. A person may have varicose veins. Stagnant blood is thick, it forms numerous blood clots in the lower half of the body, which is very dangerous. If the blood clot begins to move to the right atrium, then death is possible. This problem is not new, it has been known to all doctors and patients for several decades.

Usually during sleep, sooner or later, excess liquid venous blood can reach the cervical venous system and rush higher to the brain.

If this happens, the blood circulation in the brain is disturbed, just as in the sitting position the blood circulation in the feet is disturbed. But the legs - this is not the brain, a temporary violation of blood circulation in the legs practically occurs without consequences and without fear for a person!

The figure 1 shows that the diameter of all cervical veins as the blood flow from the brain approaches the right atrium dramatically changes its diameter. It is worth paying attention to the fact that the sharp narrowing and then the expansion of the veins are located approximately at the same height, in the region of the lower part of the neck. Arguing primitively, it seems that these restrictions are pathological, they impede the flow of venous blood from the head. Yes, they impede the outflow from the head, but at the same time protect the circulatory system from additional venous blood flow from the lower half of the body. In order to save its own life, the body adapts to the possible additional influx of venous blood from the lower half of the body. It can be said that in the event of an increase in the volume of venous blood, due to the open AVA and osteochondrosis under conditions of gravity, the circulatory system of the brain “isolates” from the general circulatory system. This is a very important observation!

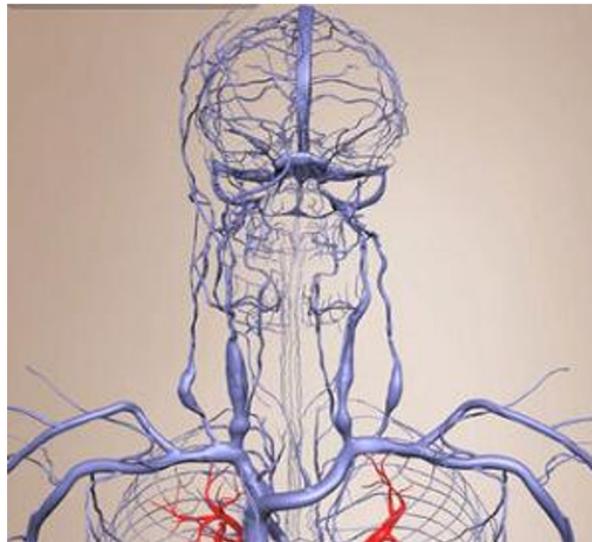


Figure 1: Shows the usual picture of changes in the venous system of a middle-aged person.

But what is the direct mechanism for increasing blood pressure and the onset of a hypertensive crisis? It is clear that the protection of the brain from circulatory disorders through spasms of the neck veins looks imperfect. But nature simply did not provide any other protection besides maintaining the muscles of the body and the cardiovascular system in good physical shape.

The sequence of events in hypertensive crisis for a person of middle or old age is as follows. There is no doubt that because of osteochondrosis, the flow of arterial blood through the vertebral arteries into the circle of Willis is disrupted. The vertebral arteries, as well as the carotid, are responsible for the nutrition and oxygen supply of the whole brain, and specifically the region of the diencephalon, which is the “highest regulation center” of the vegetative and endocrine functions: hypothalamus, hypophysis, vasomotor center, etc.

During a night’s sleep, despite spasms of the neck veins, venous pressure in the brain may increase due to the upward movement to the head of the additional volumes of venous blood accumulated in the traps during the working day. In turn, the increase in pressure in the venules of the brain reduces the pressure difference between the arterioles and venules in the “higher regulation center”. The normal difference should be about 30 - 35 mm Hg. This leads to the need for a systemic increase in blood pressure. The most complicated mechanisms of blood pressure regulation begin to work. They are subject to humoral adjustments, and the effects of the nervous system with the help of autonomic innervation.

An increase in pressure in the system is an increase in the heart rate and ejection fractions of both ventricles. All this leads to an increase in blood pressure in all arteries, including carotid and other arteries that have their own regulation of blood pressure. It is known that the regulation of blood pressure at the local level acts independently. Many arteries have baroreceptors and carry out autonomous

adjustment independent of the “center”. Such adjustment is, for example, the implementation of spasms of the muscular layer of the arteries, reduction of the diameter of the arteries. All this leads to the development of atherosclerosis, the formation of plaques in places of spasm. These forced mechanisms lead to the fact that in the “higher center of regulation” with the supply of the circle of Willis again the blood pressure drops. And all this is due to local adjustments, which lead to the fact that the pressure difference is still insufficient for satisfactory oxygen supply of brain cells and, most importantly, the “center” itself.

“Higher regulation center” in the process of crisis development, one after another, additional commands are being developed to increase blood pressure. But again, an increase in pressure in some arteries leads to additional local adjustments to the pressure for lowering. It turns out that during periods of “hypertensive crisis” systemic adjustment and local adjustments of some arteries work against each other. As a result, the body’s regulation system goes beyond the range of normal blood pressure adjustments, reaching 180 - 220 mm Hg in systole. and higher! It is at such moments that strokes and heart attacks occur. It is urgent to remove the spasms of all vessels! In fact, it is necessary to restart “from scratch” the entire system of adjustment of blood pressure in a patient. This is similar to how we restart our computer when it “hangs”.

But the initial factor leading to the disruption of the normal adjustment of blood pressure is the overflow of the venous bed during the daytime due to improperly functioning arteriovenous anastomoses (AVA) plus a sedentary lifestyle.

Several other known factors supporting the hypothesis

Why is it necessary to treat osteochondrosis and get rid of spasm of the spinal muscles?

Because vertebral arteries pass through the spinal cord and pathological mechanical action on them (due to a hernia or protrusion) leads to a decrease in arterial blood flow. And even an increase in blood pressure in the aorta does not lead to a significant increase in flow. An additional pathological factor is a spasm of the neck muscles during sedentary work. Therefore, to reduce blood pressure is so useful massage of the neck area.

Why should hypertension be treated for life?

Because the extended venous bed and the size of the organs cannot independently return to their original volume, which was at a young age. The extended venous bed, besides with damaged valves in the legs and in the pelvic area, should always be “filled” with venous blood to the level of the right atrium (taking into account the dynamics of the process). And this additional volume is too large, in the sitting position part of the venous blood moves too slowly. Myocardium has to do extra work.

How to remove the symptom of hypertensive crisis?

It is necessary to reset all the previous ones before the attack “erroneous” adjustments of blood pressure and start the process of organism adjustments anew. To do this, the patient is injected with a prick by injection, for example, a solution of magnesium sulfate. As a result, after a few minutes, the spasms of all the arteries and veins are removed. The patient becomes hot due to the influx of warm arterial blood in all organs. That’s how doctors save a person’s life.

Why is hypertension treated by physical activity and why is this the only way?

Because physical activity or special exercises reduce the disproportion in arterial and venous blood volumes. Exercise in the morning (special breathing exercises and manipulation of the cervical spine) leads to adjustment of the flow of arterial and venous blood of the brain. Physical activity after a day of work leads to optimal pumping of stagnant venous blood from the legs upwards with the help of the muscles of the lower half of the body and maximum movements of the respiratory diaphragm.

Are special breathing exercises helpful?

Yes of course. This is an additional pumping of venous blood.

Why do blood donors get better health outcomes?

Because they drain the “extra” venous blood, thereby simplifying the organismic adjustment of the volumes of venous and arterial blood.

Why is high venous blood viscosity in the morning?

Because it is precisely in the morning that stagnant venous blood completes the exit from gravity traps, thereby further increasing blood pressure.

Conclusions

New Theory of CVD and Cancer, starting in 2012, is still a theory that logically explains the causes and mechanisms of almost all cardiovascular diseases. New Theory has great potential for discovering new treatments. The only drawback of the New Theory is its ignoring at the top of the scientific community. Let me remind you that by the end of 2018, the highest academic circles in cardiology still believe that almost all CVDs have, each, unknown etiologies and unknown development mechanisms. This is their official opinion.

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