

## CLINICAL AND PATHOGENETIC ASPECTS OF THE COURSE AND TREATMENT OF HYPERTENSION

*Sharapova Nozima Erkinzhonovna*

*Asian International University Bukhara, Uzbekistan*

**Resume:** Hypertension is one of the most common diseases in the world, which often occurs at the most working age. A distinctive feature of this pathology is a long and persistent course, leading to the development of the most severe forms of complications. The outcome of the disease in these patients may be a significant decrease in working capacity – up to complete disability. The purpose of our study was to analyze the literature data devoted to the study of modern clinical and pathogenetic aspects associated with the use of non-drug treatment methods, for example, ozone therapy and laser therapy, in the complex therapy of hypertension.

**Key words:** Hypertension, ozone therapy, laser therapy.

Hypertension can be corrected only if the conditions of constant and competent therapy are strictly observed, and on the part of the patient – with a change in lifestyle.

There are many unresolved problems in healthcare today, but one of the most urgent and frequently encountered is the problem of HYPERTENSION therapy. Despite the studied pathogenesis of hypertension, as well as the role of topical, highly effective antihypertensive drugs, the effect of hypertension therapy often remains quite low: the rate of hospitalization of patients with hypertensive crises – complicated forms of hypertension - is still high [1]. It is quite difficult for the primary health care unit, namely district internists, to choose an effective treatment regimen for patients. This is due to a number of factors, the main one of which is the use of not fully effective and safe pharmacological drugs that could show high patient adherence to therapy. The reasons for this problem may be the difficulty of stabilizing blood pressure figures, frequent side effects on drugs, as well as the rapid habituation of the body to therapy [2-4].

Low efficiency and not always positive dynamics after long-term use of medications encourage many medical professionals to search for complex methods of HYPERTENSION treatment [1]. In this regard, the definition of the most effective non-drug treatment methods is becoming an urgent topic today. To obtain stable blood pressure figures in the treatment of HYPERTENSION, in addition to antihypertensive drug therapy, non-drug treatment methods are also widely used: balneotherapy, hirudotherapy, electrical procedures, ozone therapy (OT), laser therapy (LT), etc. [5, 6] In modern society of the XXI century. two non-drug methods of treatment of cardiovascular pathology available in clinical practice have proven themselves well – LT and OT [7-9].

Treatment with medications from the group of antihypertensive agents is the most effective way to prevent complications of this disease and reduce the mortality of the population from them. It is impossible not to point out the fact that it is not easy to treat patients with HYPERTENSION, despite the huge list of

effective pharmacological drugs. It should always be remembered that there is no single remedy for this disease that is suitable for each patient [4]. Therefore, the possibilities of combining drug therapy and non-drug methods of treatment of this disease are currently being considered.

Doctors are forced to turn to non-drug therapy of HYPERTENSION because of many important and unresolved problems that arise with the long-term use of antihypertensive drugs. What unresolved problems are observed with constant admission? The aspects of the problem are the side effects of drug therapy, drug interactions, the complexity of the selection of therapy taking into account the comorbid background of the patient. This is especially true for elderly patients with several concomitant diseases. In addition, it is important to note that some patients suffering from this pathology, due to the difficulties of treatment, prolonged selection of medications, simply stop taking permanent vital and necessary antihypertensive drugs [2].

Non-drug methods of treatment are gaining momentum every day in the treatment of various diseases, including HYPERTENSION, determining the positive dynamics in treatment. This is due to the fact that a decrease in blood pressure figures in patients against the background of their use is observed at any stage of the disease, which plays an important role [4, 10].

Frequent fixation by the doctor of drug intolerance makes one think about alternative methods of treatment of cardiovascular diseases. Therefore, the relevance of non-drug methods of treatment of diseases of the circulatory system is increasing every day. The most popular and in-demand are ozone therapy and laser therapy. These methods of treatment were widely used at the end of the XX century. In recent years, there has been a return to their use in various fields of medicine [10].

Ozone therapy is actively used in both clinical and preventive medicine. It belongs to the group of methods of oxidative therapy, which includes both well-known (hyperbaric oxygenation, ultraviolet irradiation of blood, low-intensity laser radiation, etc.) and new methods (the use of nitric oxide donors, singlet oxygen therapy) [11].

Ozone therapy is a non-drug method of treating HYPERTENSION, which is deservedly becoming more widespread all over the world today. This is due to a number of factors, such as the effectiveness of the method, which is several times higher than the positive dynamics with constant use of antihypertensive drugs. It is impossible not to say that OT is materially less costly for a patient suffering from HYPERTENSION. Also, this type of non-drug therapy is easy to use and does not require the patient to constantly monitor the intake of pills. OT is used quite often in the practice of doctors of various specialties, including in the practice of a therapist [12, 13].

Ozone is an allotropic form of oxygen. Its most important quality as a chemical compound is the strongest oxidizing properties, surpassed in this respect only by fluorine. Ozone contributes to the maximum absorption of oxygen by the blood. Blood in the presence of ozone can absorb more oxygen than under standard conditions. With OT, the blood is liquefied, becomes more saturated with oxygen. There is also an expansion of small blood vessels. In this way, blood flow and microcirculation are improved [14].

Ozone is able to shift the redox balance of metabolic systems, cause compensatory mobilization of endogenous antioxidants from the depot, activate the enzymatic link of antiradical protection. These ozone effects are aimed at stabilizing the dynamic equilibrium between free radical lipid oxidation and the body's antioxidant processes [12]. Ozone changes the functional properties of hemoglobin, in particular through the "hydrogen sulfide – cysteine–cystine" pathway and NO-ergic mechanisms. Due to the ability of ozone to activate factors facilitating the expression of NO-synthase, there is an increase in the concentration of nitrogen monoxide in the blood. The interaction of nitrogen monoxide and hydrogen sulfide can affect the modification of the affinity of hemoglobin to oxygen through the formation of various derivatives of hemoglobin, modulating the intraerythrocyte system for the formation of oxygen-binding properties of

blood, as well as through systemic mechanisms for the formation of functional properties of hemoglobin. The ozone effect manifests itself in an increase in the content of such gas transmitters as nitrogen monoxide and hydrogen sulfide, which can affect the modification of oxygen-binding properties of blood [8, 11].

OT contributes to the normalization of metabolic processes in most patients. It affects lipid and carbohydrate metabolism. Against the background of OT, the risk of atherogenic changes in the body decreases. Medical ozone is an ozone–oxygen mixture obtained from ultrapure oxygen when exposed to a weak electric discharge or by ultraviolet irradiation. Intravenous infusions of ozonated saline solution have a multifaceted effect on the body. The detoxification and antihypoxic effects of ozone are the most studied. The effectiveness of the method in the treatment of patients with HYPERTENSION is associated with the effect of medical ozone on microcirculation in tissues. Against the background of OT, there is a decrease in the tone of arterioles, an increase in pulse blood filling of organs and relief of venous outflow. Ozone has the ability to have a moderate hypocoagulation effect. Parenterally administered ozone increases the elasticity of red blood cells, increases the partial pressure of oxygen in arterial blood, facilitates the release of oxygen from oxidized hemoglobin. The effect of OT on lipid and carbohydrate metabolism, indicators of the hemostasis system in hypertension is an important factor in the rehabilitation treatment of such patients [7].

When analyzing the literature data, it was found that in patients who were constantly using hypotensive drugs and an ozone–oxygen mixture was added to the treatment, the positive dynamics of blood pressure figures was higher than in those patients who remained only on drug therapy. It should also be noted that ozone has a beneficial effect on the rhythm of the heart, namely, it reduces the frequency of rhythm disturbances in patients suffering from various forms of arrhythmias. There is a lot of talk in the literature about the fact that the use of several courses of OT leads to stabilization of the lipid spectrum. The pathogenesis of this effect is to increase the activity of the antioxidant system and reduce lipid peroxidation [13].

A large number of methodological recommendations for ozone therapy are presented in the literature data. One of the most common methods is a seven-day course of low-volume ozone therapy. A volume of 50 ml with an ozone concentration of 4 mcg / l is administered intravenously to the patient daily. Quantitative data are applicable for patients with normal body weight and with any stage of the disease.

The second most common non–drug method of HYPERTENSION treatment is laser therapy. The laser therapy method is intensively and purposefully used in cardiology, because it has a wide range of effects on blood vessels and the heart. After LT sessions, the blood carries and binds oxygen much better, so much more of it enters the heart and brain than usual. The use of a laser for the treatment of HYPERTENSION significantly improves the patient's condition: headache appears less often or disappears, dizziness and unpleasant sensations in the heart area may also stop. Pressure indicators change significantly for the better, which makes it possible to reduce the number of antihypertensive drugs.

Currently, the literature describes many methods of LT (for example, contact-mirror technique, the use of an LED matrix, and many others). The essence of the contact-mirror technique is that the emitting head is in contact with the illuminated surface through a mirror nozzle, while the LED matrix is applied at a distance from the body. These two methods are complementary to each other. It is worth noting that LT is most often carried out with a wavelength of about 0.89 microns. At the same time, the main manifestation of positive dynamics when using LT is a decrease in peripheral vascular resistance, which is due to the vasodilating effect of infrared radiation, as well as a decrease in heart rate. An equally important clinical aspect after passing the course of LT is the positive changes in hemorheology, namely, a decrease in the aggregation of erythrocytes and platelets [6].

One of the most widespread methods of therapeutic effects of low-intensity laser radiation on the human body is intravenous laser irradiation of blood. Currently, it is successfully used in various fields of medicine. Under the influence of LOW-INTENSITY LASER RADIATION, the permeability and deformability of erythrocyte membranes increases; aggregation capacity decreases, the level of adenosine triphosphate increases, oxygen transport function increases. Changes in the membrane structure, adhesive and aggregation properties, and changes in the level of biologically active substances are noted in platelets. The positive effect of LOW-INTENSITY LASER radiation on microcirculation and oxygen utilization in tissues was noted. Against the background of this type of treatment, the content of lipid peroxidation products decreases, procoagulant, anticoagulant and fibrinolytic properties change, the sorption properties of albumins increase [9].

One of the important facts when using LT is that its effectiveness depends on the stage and degree of arterial hypertension. Accordingly, positive dynamics is observed more often in patients with mild and moderate stage of HYPERTENSION, when high efficiency of LT is achieved without taking antihypertensive drugs [22]. It is impossible not to say about the effectiveness of LT in patients with severe HYPERTENSION. The positive dynamics can be traced in the improvement of the general condition, a decrease in blood pressure figures. At the same time, some patients have the possibility of withdrawal in combination of one or more medications. With an integrated approach to the treatment of severe HYPERTENSION, LT can significantly improve the effectiveness of treatment and the quality of life of patients [23].

### Conclusion

Considering all of the above, I would like to note that the current method of treating HYPERTENSION is currently an integrated approach that allows combining non-drug treatment methods along with antihypertensive drugs. When analyzing the literature data, it was found out that low-intensity LT and OT have high proven effectiveness in this field of medicine. The main positive effects of laser therapy and ozone therapy in the treatment of hypertension are as follows: normalization and stabilization of blood pressure figures, as well as the lipid spectrum, reduction of heart rate and normalization of rhythm, improvement of hemorheology and, of course, improvement of the quality of life of these patients. In conclusion, it should be noted that non-drug methods of treating hypertension include diet, physical activity, normalization of body mass index and psycho-emotional background. A patient suffering from hypertension, as well as the doctor conducting his treatment, should be aware of the factors affecting the course of the disease and its outcome. The implementation of simple preventive measures is necessary both for recovery and for the prevention of a number of complications of the disease. And the correct and comprehensive approach to therapy, including aspects of non-drug treatment, determined by a specialist, will help improve the quality of life and avoid many complications inherent in this insidious pathology.

### Literature

1. Полозова Э.И., Лещанкина Н.Ю., Нарваткина М.А., Хохлова Л.Н., Сади А.Ш. КЛИНИЧЕСКИЕ И ПАТОГЕНЕТИЧЕСКИЕ АСПЕКТЫ НЕМЕДИКАМЕНТОЗНЫХ МЕТОДОВ ЛЕЧЕНИЯ ГИПЕРТОНИЧЕСКОЙ БОЛЕЗНИ // Современные проблемы науки и образования. – 2021. – № 2. ;
2. Халимова, Ю. С. (2022). МОРФОФУНКЦИОНАЛЬНЫЕ ОСОБЕННОСТИ ЯИЧНИКОВ КРЫС ПРИ ВОЗДЕЙСТВИИ КОФЕИН СОДЕРЖАЩИХ НАПИТОК. *Gospodarka i Innowacje.*, 23, 368-374.
3. Жураева Г.Б. Оптимизация алгоритма патологоанатомической диагностики при эндометриозе яичника с применением иммуногистохимического метода // Новый день в медицине. 2022. –1(3) –С.140-145(14.00.00 №22)

4. Халимова, Ю. С. & Шокиров, Б. С. (2022). МОРФОФУНКЦИОНАЛЬНЫЕ ОСОБЕННОСТИ ВНУТРЕННИХ ОРГАНОВ ПРИ ХРОНИЧЕСКОМ АЛКОГОЛИЗМЕ. *Scientific progress*, 3(2), 782-789.
5. ГТ, Э., & Саидова, Л. Б. (2022). СОВЕРШЕНСТВОВАНИЕ РЕАБИЛИТАЦИОННО-ВОССТАНОВИТЕЛЬНЫХ КРИТЕРИЕВ БОЛЬНЫХ С СД-2 ТИПА. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 2(12), 206-209.
6. Халимова, Ю. С., & Шокиров, Б. С. (2022). СОВРЕМЕННЫЕ ДАННЫЕ О МОРФО-ФУНКЦИОНАЛЬНЫХ АСПЕКТАХ ЧЕЛОВЕЧЕСКОГО ОРГАНИЗМА ПРИ ЗЛОУПОТРЕБЛЕНИИ ЭНЕРГЕТИЧЕСКИМИ НАПИТКАМИ. *PEDAGOGS jurnali*, 4(1), 154-161.
7. Ergasheva, G. T. (2022). QANDLI DIABET BILAN KASALLANGANLARDA REABILITATSIYA MEZONLARINI TAKOMILASHTIRISH. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 2(12), 335-337.
8. Жураева Г.Б. Патоморфологические изменения миометрия при внутреннем эндометриозе // Новый день в медицине.2022. –1(39) –С.140-145(14.00.00 №22)
9. Ergasheva, G. (2023). METHODS TO PREVENT SIDE EFFECTS OF DIABETES MELLITUS IN SICK PATIENTS WITH TYPE 2 DIABETES. *International Bulletin of Medical Sciences and Clinical Research*, 3(10), 104-108.
10. Halimova, Y. S. (2023). Morphological Aspects of Rat Ovaries When Exposed to Caffeine Containing Drink. *BEST JOURNAL OF INNOVATION IN SCIENCE, RESEARCH AND DEVELOPMENT*, 2(6), 294-300.
11. Salokhiddinova, X. Y. (2023). INFLUENCE OF EXTERNAL FACTORS ON THE MALE REPRODUCTIVE SYSTEM. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 3(10), 6-13.
12. Juraeva G.B. Study of clinical and morfological features of differentforms of endometriosis// Nat.Volatiles @ Essent.Oils.2021, Vol 4. – P. 10901–10907.
13. Халимова, Ю. С. (2021). MORPHOFUNCTIONAL ASPECTS OF THE HUMAN BODY IN THE ABUSE OF ENERGY DRINKS. *Новый день в медицине*, 5(37), 208-210.
14. Yu S, H., & BS, S. (2023). Morphological changes of internal organs in chronic alcoholism.