Hypertension


[Metabolic determinants of efficacy of infrared laser therapy in hypertensive patients with combined pathology]

[Article in Russian]

Krysiuk OB, Ponomarenko GN, Obrezan AG, Kostin NA.

By a distinct pathogenetic direction of a therapeutic action of laser therapy (LT) on different regulators of blood pressure (BP) and metabolism, 109 patients with essential hypertension (EH) and atherosclerosis and/or diabetes mellitus were studied for LT efficacy depending on metabolis disorders. LT demonstrated metabolic neutrality and inefficacy in patients with multiple marked disorders of fat metabolism and hyperglycemia. Metabolic factors determining LT efficacy comprise hypercholesterinemia, hypertriglyceridemia and hyperglycemia. The factorial analysis points to essential factor restructuring in metabolic disorders. The obtained equation of multiple regression allows prognostication of the degree of a fall of mean BP in response to LT depending on the degree of metabolic disorders.

[Efficiency of low-intensity laser radiation in essential hypertension].

In a placebo-controlled study an antihypertensive activity of low-intensive laser radiation (LILR) was evaluated in 52 males with essential hypertension stage I. The placebo group consisted of 14 matched patients. LILR was used as monotherapy of 10 daily procedures. This treatment significantly lowered systolic, diastolic and mean arterial pressure. Moreover, diastolic arterial pressure did not rise high at submaximal bicycle exercise. Total peripheral vascular resistance also decreased. A good hypotensive effect was achieved in 90.4% cases. Thus, LILR is a highly effective treatment in essential hypertension stage I.

[The efficiency of low-intensity laser radiation in the treatment of arterial hypertension complicated by ischemic heart disease]
[Article in Russian]
Shuvalova IN, Klimenko IT, Svinina NG, Tsereteli MV, Zankina VG, Miasoed FR.

The efficiency of low-intensity laser radiation (LILR) was studied in the treatment of 291 patients with arterial hypertension and ischemic heart disease. Clinical grounds are given for use of LILR red and infrared rays in rehabilitation of hypertensive patients with ischemia. The rehabilitation regimens can be differentiated according to the disease severity, type of hemodynamics, state of cerebral circulation.

[The effect of low-intensity laser radiation in the infrared and red ranges on arterial pressure regulation in patients with borderline hypertension]

[Article in Russian]

Shuvalova IN, Klimenko IT, Zhukova LP, Oborin IuI.

Effectiveness was studied of low-intensity laser irradiation on regulation of arterial blood pressure (BP) in 185 patients (51 men, 134 women). The above patients were prescribed four therapeutic complexes: group I was exposed to infra-red irradiation by zones; group II--to scanning Helium-Neon laser across the portal zone and paravertebrally CIII-Th5; group III--to helium-neon laser in the area of right sinocarotid zone; group IV underwent hydrolaser shower (in red and intra-red range). Complaints were studied as were data from laboratory investigations, the condition of different bodily systems, BP level, the functional state of the cardiovascular system as per electrocardiography and rheography findings. A positive clinical effect was achieved in all the groups studied. Employment of low-intensity laser irradiation in the rehabilitation of patients with borderline hypertension during the sanatorium stage was noted to strikingly enhance the efficiency of the therapy administered. It can be prescribed to patients irrespective of their hemodynamic types. Irradiation of the right sinocarotid zone and hydrolaser therapy are indicated to patients presenting with hypo- and eukinetic types of hemodynamics and baseline sympatheticotonia.

[The effect of plasmapheresis and laser irradiation of the blood on the hemorheological and hemodynamic indices in hypertension patients]

[Article in Russian]

Alizade IG, Karaeva NT.

Results are submitted of investigation designed to study effects of a combined use of plasmapheresis and laser irradiation of blood on hemorheologic and hemodynamic characteristics in 36 patients with stage II hypertensive disease. The course exposure of patients to a combined use of plasmapheresis and laser irradiation of blood led to a drop
of arterial pressure in different hemodynamic groups at the expense of different parameters characterising the hemodynamic status. Thus combined use of plasmapheresis and laser irradiation of blood can be considered a promising nonmedicamentous therapeutic alternative in patients with hypertensive disease being associated with a drop of arterial blood pressure, and what is more, improvement in viscous- and elastic properties of blood as well as its hemodynamic indices.


[Effects of laser therapy on psychophysiological parameters and arterial blood pressure in drivers with hypertension]

[Article in Russian]

Umetov MA.

The study covered possibility to use laser therapy for correction of arterial hypertension in car and track drivers suffering from high blood pressure. Laser irradiation of infrared waves with wavelength of 0.89 micrometers appeared to have positive influence on the drivers facing arterial hypertension.


[Experience in the use of autotransfusions of laser-irradiated blood in treating hypertension patients]

[Article in Russian]

Alizade IG, Karaeva NT.

Autotransfusion of laser light-irradiated blood (5-7 sessions) was found to facilitate a steady arterial blood pressure fall by an average 24% of the initial level in patients with hypertensive disease. Drop in the arterial blood pressure following the course of autotransfusion of laser light-irradiated blood was accompanied by improvement in general condition of the patients, enhancement of the effectiveness of antihypertensive preparations, favourable shifts in immunological and haemorheological indices. After discharge from hospital beneficial clinical effect persisted for up to 4-8 months. The preliminary data obtained suggest that autotransfusion of laser light-irradiated blood may well be used as adjunct to a complex of therapeutic measures to be taken to control hypertensive disease.


[The laser therapy of patients with hypertension in combination with coronary insufficiency]
Hypertensive patients with coronary insufficiency have received infrared (lambda = 0.85 microns) laser radiation to the skin. The treatment is shown to have antianginal, antihypertensive effects, to improve cardiac performance, myocardial contractility, to increase myocardial, coronary and aerobic reserves. This clinicofunctional efficacy is accompanied by positive shifts in lipid metabolism, lipid peroxidation activity, antioxidant defense, hemocoagulation and microcirculation.


Data on the influence of low-intensity infrared laser on the central and peripheral hemodynamics in 76 agricultural machine operators facing transitory arterial hypertension are presented. Analysis revealed that low-intensity laser is more effective at the early stages of cardiovascular diseases. Low-intensity infrared laser exposure of reflexogenic zones can be effectively used to correct hemodynamic disorders in subjects facing transitory arterial hypertension.

93 patients with ischemic heart disease, 44(47.3%) of them with arterial hypertension, were exposed to laser irradiation (LI). LI was accompanied with lowering of arterial pressure, more prominent in hypertensive patients. Mechanism of the hypotensive effect of laser therapy operates largely through stabilization of the lipid bilayer of the cell membrane demonstrated on the model of erythrocyte.

Evaluation of the effectiveness of normobaric hypoxia and low-intensity laser radiation in hypertensive patients from 24-hour arterial pressure monitoring data

Velizhanina IA, Evdokimova OV.

A randomized parallel study was performed to compare the antihypertensive effect of normobaric hypoxia and low energetic laser irradiation in 57 patients with essential hypertension stage I using 24-hour blood pressure monitoring. High hypotensive efficacy of both methods is demonstrated. A course of normobaric hypoxia decreased mean 24-h and mean daytime systolic and diastolic blood pressure. Low energetic laser irradiation reduced mean 24-h, mean daytime and mean night systolic and diastolic blood pressure.


The laser therapy of hypertension patients in the initial stages

Velizhanina IA, Shabalina MS, Gapon LI, Kamalova NN, Sergeichik OI.

The effect of low-energy laser irradiation used as monotherapy was studied in 42 patients with early essential hypertension. Hypotensive and antioxidant effects of laser therapy, its ability to decrease total peripheral resistance were more pronounced in patients with stage I hypertension.


Laser-, ultraphono-, and acupuncture in complex treatment of patients with hypertension

Sobetskii VV.

368 patients with hypertensive disease stage I and II were examined and treated either with laser puncture or acupuncture. Laser puncture was effective at stage I of hypertensive disease while acupuncture had a more potent hypotensive effect and can be used both in hypertensive disease stage I and II. Action on the acupuncture points and zones normalizes also parameters of the central and peripheral hemodynamics in hypertensive patients.

[The effectiveness of laser puncture in hypertension patients]

[Article in Russian]

Odud AM, Potapenko PI.

A study is presented of the results of laser puncture in combination with drug treatment of patients with hypertensive disease using an association of different acupuncture points. The values of hemodynamics were evaluated by routine techniques of tetrapolar chest rheo- and kinetocardiography. The use of laser puncture allowed to reduce the dose of hypotensive drugs.


[The use of laser puncture for managing hypertensive crises]

[Article in Russian]

Odud AM, Potapenko PI.

The authors report efficacy of using laser puncture and pointed massage in controlling hypertensive crises in patients suffering of hypertensive disease. The arterial pressure was reduced mainly due to decrease of the peripheral resistance. This method of treatment was more effective in patients with moderate and significant hypertrophy of the left ventricle as compared with patients showing marked hypertrophy of the left ventricle.


[Optimization of the treatment of patients with hypertensive disease from the rheological viewpoint]

[Article in Russian]

Shabanov VA, Kitaeva ND, Levin GLa, Karsakov VV, Kostrov VA.

The efficacy of various modes of correcting rheological disorders (membrane-protective agents, laser irradiation, plasmapheresis was compared in hypertensive patients. In 30% of the patients, the conventional antihypertensive therapy was demonstrated to deteriorate hemorheological parameters, which was due to its atherogenic impact on the blood lipid spectrum. Essential phospholipids, laser irradiation, and plasmapheresis, which are supplemented to the multimodality therapy promote a significant improvement of hemorheological parameters, which makes it possible to recommend them for
management of hypertensive patients with a stable (essential phospholipids), complicated (laser irradiation), and refractory (plasmapheresis) course.


[Changes in blood rheological properties in patients with hypertension]

[Article in Russian]

Shabanov VA, Terekhina EV, Kostrov VA.

AIM: To study hemorheology in patients with essential hypertension (EH), to improve EH treatment in terms of blood rheology. MATERIAL AND METHODS: Blood rheology, microcirculation, lipid plasm spectrum, central hemodynamics were studied in 90 patients with mild and 83 patients with moderate or severe EH as well as 30 healthy controls before and after treatment (hypotensive drugs, essential phospholipids, intravenous laser blood radiation, plasmapheresis). RESULTS: Hemorrheological disorders (subnormal deformability of the red cells and elastoviscosity of their membranes, disk-spherical transformation and hyperaggregation of blood cells, high dynamic viscosity) correlated with the disease severity, arterial pressure and total peripheral vascular resistance. Long-term (1-1.5 years) hypotensive therapy, especially with combination of beta-blockers with diuretics, has a negative effect on blood rheology. Optimisation of EH treatment in terms of blood rheology consists in using essential phospholipids in stable hypertension, intravenous laser radiation in complicated hypertension, plasmapheresis in drug-resistant hypertension. Such an approach not only significantly improves hemorheology but also provides good clinical and hypotensive effects in 75-80% patients. CONCLUSION: Blood viscodynamics should be taken into consideration in individual treatment of hypertensive patients.

[Effect of infrared laser irradiation on the arterial blood pressure in liquidators of the accident at the Chernobyl power plant]

[Article in Ukrainian]

Korkushko OO.

Kiev Medical Institute UAPM.

Liquidators of Tchernobyl accident with discirculatory post-irradiation encephalopathy were treated with infra-red lazer irradiation together with a half doze of pharmacological agents usually used. Infra-red lazer irradiation has been shown to result in a significant reduce in the arterial pressure level, so it can be effective in correcting the disturbances in haemodynamics.

[Intravenous laser irradiation of the blood in occlusive vascular diseases of the extremities]

[Article in Russian]

Shval'b PG, Zakharchenko AIa, Sigaev AA, Kataev MI.

The authors analyze the results of clinical application of intravenous He-Ne laser irradiation of the blood in patients with obliterating diseases of the limb vessels. Starting from 1984, this method was employed in the treatment of 133 patients, of these 102 ones with atherosclerosis obliterans of the lower limb vessels, 17 with endarteritis obliterans, and 14 with Raynaud's syndrome. Intravenous laser therapy proved to be the most effective in atherosclerotic involvement of the vessels, when positive result was achieved in 77.5 percent of patients. The length of remission was up to 6 months. The method of treatment is described.


GENOTYPE OF HYPERTENSIVE PATIENT DETERMINES TREATMENT SUCCESS

St. Petersburg, Chair of Balneology and Physical Therapy, Kirov Army Medical College 13.09.2005

Success of hypertension treatment depends on how well the chosen treatment mode matches the patient's genotype. Specialists of the Chair of Balneology and Physical Therapy (Kirov Army Medical College) have determined how the hypertensive patient's genotype impacts the efficiency of magnetic-laser therapy.

Scientist: G.N. Ponomarenko, St. Petersburg

For additional information: ponomarenko_G@mail.ru

Photo, pictures:

Keywords:

Primary hypertension is one of the most frequent diseases, the treatment of which is still a problem to contemporary medicine. The disease is determined by some genes, each of the genes may exist in several variants. Respective combination of these genes forms the so-called "risk threshold" of disease origin. The major contribution to the hypertension evolution is made by the genes of angiotensinogen (AGT), angiotensin converting enzyme (ACE) and some others. Their combination determines not only the risk of disease occurrence, but also a potential success of its treatment. Thus, adrenolytic drugs act differently on central hemodynamics depending on the AGT and ___ genes' polymorphism. Besides drug therapy, there
exist physical treatment modes, specifically - magnetic-laser therapy. The St. Petersburg physicians have researched how its effectiveness depends on genotype.

Magnetic-laser therapy effectiveness was evaluated with 101 patients with different variants of genes' polymorphism. The polymorphism itself was determined with the help of the polymerase chain reaction, having taken some venous blood from the patients. Participants to the experiment underwent a radiation treatment course consisting of ten everyday sessions, the patients being examined before and after the course. Physicians watched the blood pressure changes within 24 hours and the reaction to physical activity (the patients were placed on the bicycle ergometer). Polymorphism of different genes determines the clinical behavior and treatment effectiveness to different extent.

Magnetic-laser therapy helps the majority of hypertensive patients. The ____ gene has the highest influence on the magnetic-laser therapy results. In case of one variant of polymorphism (it is called MM- polymorphism) the blood pressure falls down to the greatest degree. The researchers have also found the combinations where the effect is the lowest (this is TT-polymorphism of the angiotensinogen gene). It is interesting to note that the variant of angiotensin converting enzyme (ACE) polymorphism is the worst for success of magnetic-laser therapy but it is optimal for drug treatment of high blood-pressure.

There are several genes that determine effectiveness of hypertension treatment. To clearly perceive their joint impact it is necessary to continue the research. However, it is evident already which genes determine to the largest extent the blood pressure and the value the blood pressure can be lowered in this or that way. Probably the patients will be soon undergo genetic blood test first, and then, depending on its results, the treatment will be prescribed.

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