

## Bronchitis

[Vopr Kurortol Fizioter Lech Fiz Kult.](#) 2009 Mar-Apr;(2):19-22.

### **[Low-intensity laser radiation in the combined treatment of patients with chronic obstructive bronchitis]**

[Article in Russian]

[Kashanskaia EP](#), [Fedorov AA](#).

This study included 89 patients with chronic obstructive bronchitis (COB) that were exposed to harmful occupational factors. The control group consisted of 30 healthy subjects. Chronic obstructive bronchitis is characterized by serious disturbances in the cardiorespiratory system that manifest themselves in the form of bronchogenic pneumosclerosis with moderate lung emphysema and pulmonary hypertension associated with impaired general resistance. Simultaneously, activity of lipid peroxidation reactions decreases. Application of low-intensity laser radiation in combination with other therapeutic modalities for the treatment of patients with chronic obstructive bronchitis accelerates elimination of clinical symptoms, increases its efficiency, promotes drainage function of the bronchi, facilitates normalization of the patient's immune status, and contributes to the optimization of lipid peroxidation processes.

[Klin Med \(Mosk\).](#) 2007;85(9):58-61.

### **[The effect of intravenous laser irradiation of blood on the system hemodynamics of patients with chronic obstructive bronchitis exacerbation]**

[Article in Russian]

[Burduli NM](#), [Aksenova IZ](#).

The aim of the study was to evaluate the effects of intravenous laser irradiation of blood (ILIB) on system hemodynamics in patients with chronic obstructive bronchitis (COB) exacerbation. Ninety-seven patients with COB exacerbation were divided into two comparable groups. The 47 patients of the control group received conventional medication, while the 50 patients of the main group received the same therapy plus ILIB, which consisted of 10 everyday 20-min procedures. Central hemodynamic variables were measured prior to and after the treatment. The results demonstrated higher effectiveness of COB treatment when ILIB was applied and that ILIB itself had a positive effect on system circulation in COB exacerbation by changing hyperkinetic hemodynamics into

normokinetic one. The study shows that it is appropriate to include ILIB into treatment of COB.

[Klin Med \(Mosk\).](#) 2004;82(8):34-7.

### **[Platelet aggregatory impairments in chronic obstructive bronchitis and a role of laser therapy in their correction]**

[Article in Russian]

[No authors listed]

A comparative follow-up was made to study platelet aggregatory function in patients with chronic obstructive bronchitis (COB) prior to and following treatment. The patients were divided into study and control groups. In addition to conventional treatment, the patients of the study group received laser therapy as intravenous blood irradiation. According to the type of baseline platelet aggregatory changes, all the patients were divided into 3 subgroups: 1) patients with hyperaggregation; 2) those with normal aggregation; and 3) those with hypoaggregation. In the patients from the study group, the performed treatment corrected platelet aggregatory disorders--the degree of aggregation decreased from 78 +/- 8.6% to 56.8 +/- 6.9% in Subgroup 1, increased from 23 +/- 4.8% to 54.6 +/- 6.21% in Subgroup 3. The similar positive changes in aggregation rates and the cumulative aggregation index was observed in the study group. In the control group, conventional drug therapy caused no substantial changes in platelet aggregatory function. Thus, intravenous blood laser irradiation is an effective technique in correcting thrombocytic dysfunction in COB.

[Klin Med \(Mosk\).](#) 2000;78(12):25-8.

### **[Efficiency of endobronchial laser therapy in patients with chronic bronchitis]**

[Article in Russian]

[Artem'eva EG, Latfullin IA.](#)

Clinical effectiveness of endobronchial laser therapy (EBLT) was studied in 18-56-year-old patients with chronic bronchitis (CB) running for 2-18 years. A parallel luminescent and histochemical tests measured histamine, serotonin and catecholamines in bronchial mucosa. It was found that alveolar macrophages, lymphocytes and mucus of CB patients contain significantly higher amounts of histamine and serotonin though low amounts of catecholamines than those of healthy subjects. Levels of monoamines in alveolar macrophages, lymphocytes, neutrophils, mast and APUD cells, mucus in of CB patients correlated with the disease phase, duration, features of endobronchitis, bronchial obstruction and severity of respiratory insufficiency. EBLT produced a positive effect on

CB course and bronchial mucosa bioamines. It was superior to conventional therapy in lowering of histamine and serotonin in alveolar macrophages, lymphocytes and mucus as well as in raising catecholamines.

## **EFFECTIVENESS OF DIFFERENT SCHEMES OF LOW INTENSITY LASER THERAPY IN PATIENTS WITH CHRONIC OBSTRUCTIVE BRONCHITIS (COB)**

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A variety of mechanisms of laser irradiation in non-specific immunity stimulation have been reported lately. One of the factors contributing to the frequent exacerbation's of COB is the presence of the secondary immunological insufficiency in this category of patients. The aim of the present study is to analyze the results of different schemes of the low intensity laser therapy use and its influence on cellular immunity and the clinical course of the disease in patients with COB during the period of exacerbation. 100 patients, 78 male and 22 female, the mean age was 51, with the diagnosis of COB and respiratory insufficiency I-II, were divided into 4 equal groups at random. Patients of the first group underwent endovascular laser irradiation of the blood by the helium-neon laser installation "ALOK-I" with the irradiation power of 2mW; the second group received the contact treatment on the projection of the main bronchi, interscapular area by the infra-red laser installation "Mustang-017" with the power of 8-10W. The third group received the combination of endovascular laser irradiation with the contact one, The course of laser therapy in all group lasted for 15 days and was combined with conventional therapy. The control group of patients underwent only conventional therapy including antibacterial drugs, vitamins, physiotherapy. The indices analysis of the immunity cellular link in the dynamics of laser therapy and conventional therapy in these groups has shown the evident positive dynamics of the initially decreased T-lymphocytes (CD, J, T-suppressors (CDg<sup>^</sup>), B-lymphocytes (CD,<sup>^</sup>) ( $p < 0,05$ ). The best results were observed in patients who had received the combination of endovascular laser irradiation with the contact one ( $p < 0,05$ ). In the control group the dynamic of the studied indices was positive, but not strongly marked ( $p > 0,05$ ).

## **USE OF LOW POWER LASER LIGHT IN TREATMENT OF A CHRONIC PURULENT BRONCHITIS**

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Transplantation of autologous leukocytic suspension extracorporeally cured with a helium-neon laser "TPLA" of  $\lambda = 632,8$  nm and an exit light conductor power of 1,5 mW was made use of in treatment of 53 pts suffering with CPB. Curing was applied during a 7 minutes period. Transplantation of AL suspension was carried out during a sanitation

fibroscopy (FN3). The treatment was conducted up to a normalisation in an endoscoimages state and elimination of clinical and laboratory inflammatory signs. The results were compared to those of the conventionally treated 32 CPB pts (antibiotics, broncholytics, FBS with an infusion of mycosolvin and furagin). The following phenomena were revealed: 1) an improvement in the blood cells phagocytic activity under an application of HNL light cured autoleukosuspension. An increase in Ph% from 71,8 up to 88,8 ( $p < 0,05$ ), in PhN from 5,3 up to 8,9 ( $p < 0,05$ ), in PhCV from 0,76 up to 1,01 ( $p < 0,05$ ) was evidenced, besides, these post treatment values in the experimental group didn't differ from those of healthy persons ( $p > 0,05$ ); 2) a reduction in a number of FBS sessions from 5-7 conducted during the conventional treatment down to 3-4 ones carried out with LL-cured AL suspension. 3) a reduction in the quantity of anti-biotics administered: while carrying out transplantation of autoleukosuspension cured with HNLaser light we could completely reject antibiotics administration and only 1 pt had to be subjected to a second course of administering antibacterials preparations, whereas during the conventional treatment antibiotics were administered to all the pts, and 47,1% of them had to be subjected to a double course of antibiotics therapy; 4) a reduction in an average hospital stay period from 30,2 down to 23,8 days. Thus, an introduction of transplantation of HNLL-cured AL-suspension into the CPB pts therapy causes an increase in the organism's non-specific resistant-resistance, minimises a medicamentous load upon a pt and cuts down a duration of a hospital stay period.

Ter Arkh. 1997;69(10):34-6.

### **[The efficacy of membrane-stabilizing therapy in patients with chronic obstructive bronchitis]**

[Article in Russian]

[Prozorova GG, Sil'vestrov VP, Simvolokov SI, Nikitin AV.](#)

A membrane stabilizing effect of endobronchial laser therapy and antioxidative drugs piracetam and solcoseryl was studied in 83 patients with chronic bronchitis. Malonic dialdehyde was measured to evaluate effects of this treatment on cellular and humoral immunity, blood coagulation and lipid peroxidation. It was found that the addition of membrane stabilizers to standard therapy of chronic bronchitis lowered malonic dialdehyde concentrations while the addition of the stabilizers and endobronchial laser therapy relieved clinical symptoms earlier, improved parameters of immunity, hemostasis and lipid peroxidation.

Ter Arkh. 1997;69(3):17-9.

### **[The treatment of patients with chronic obstructive bronchitis by using a low-power laser at a general rehabilitation center]**

[Article in Russian]

[Vorotnev AI, Deriabin NM, Romanov AI, Sil'vestrov VP, Titov VI.](#)

100 patients with chronic obstructive bronchitis were examined and treated in the therapeutic department of rehabilitation center. Combined treatment including low-energy laser radiation produced good results. Laser therapy has improved bronchial permeability, sensitivity of bronchial beta 2-receptors to sympathomimetics. As a result, their intake was reduced or discontinued. Laser radiation combined well with other non-pharmacological modalities.

Arkh Patol. 1995 Nov-Dec;57(6):21-5.

### **[Morphologic studies of bronchial biopsies in chronic bronchitis before and after treatment]**

[Article in Russian]

[Chumakov AA, Boikova SP, Popkova AM, Igonina NP, Boikov KA.](#)

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Bronchial biopsies in patients with chronic bronchitis were studied histochemically, light and electron microscopically before and after conventional treatment and combined therapy (standard regimen plus He-Ne laser puncture). The conclusion is made that the combined therapy is more effective especially at early stages of the disease when irreversible sclerotic changes in the submucosa and microcirculatory bed are absent. This therapy at early stages of the disease stimulates regeneration of the surface bronchial epithelium and facilitates reversibility of initial metaplasia.

[Lik Sprava.](#) 1993 Oct-Dec;(10-12):75-9.

### **[Clinico-morphological comparisons in the laser therapy of chronic bronchitis patients]**

[Article in Russian]

[Feshenko IuI, Dziublik AIa, Gomoliako IV, Chechel' LV, Kulik IV.](#)

The article presents results of endobronchial treatment with low-intensity laser in 56 patients with chronic non-obstructive bronchitis (CNOB). Irradiation was carried out in 5-7 positions. Course of the treatment consisted of 4-6 seances. 14 days after the start of the treatment patients showed improvement of general condition, normalization of body temperature, reduction of cough, disappearance of endoscopic inflammatory changes in bronchial mucosa. Morphometrical data evidenced activation of proliferative processes and normalization of bronchial secretion which indicated increase of tissue metabolism. Cytological study revealed qualitative improvement of epithelial cover. Low-intensity

laser is noted to be highly effective in the treatment of patients with CNOB, especially in the early stage of pathological process.

[Probl Tuberk.](#) 1991;(6):26-9.

**[Effect of low-energy laser irradiation of bronchial mucosa on systemic and local immunity in patients with chronic bronchitis]**

[Article in Russian]

[Ivaniuta OM](#), [Chernushenko EF](#), [Dzublik AIa](#), [Tyshko NA](#), [Naida IV](#), [Kulik IV](#).

The effectiveness of endobronchial low-energy laser therapy was studied in 28 patients with chronic nonobstructive bronchitis concurrent with thinning of bronchial mucosa. The course of treatment made it possible to obtain positive dynamics of most parameters of immunologic reactivity in CNB patients. Systemic immunity parameters, except for the NST and concentration of circulating immune complexes, underwent essential normalization. Marked positive changes were found in the parameters characterizing functional activity of alveolar macrophages: there was a 2.5-fold increase in adhesive properties and over 1.3-fold increase in the percentage of phagocytes. The level of secretory IgA rose significantly (by 3.5 times). Hence, a manifested therapeutic effect of this therapeutic method is mainly associated with its immune-stimulating action.

[Probl Tuberk.](#) 1989;(4):50-3.

**[Treatment of nonspecific endobronchitis with low-intensity laser irradiation (experimental study)]**

[Article in Russian]

[Maliev BM](#), [Shesterina MV](#), [Solov'eva IP](#), [Boikov AK](#).

Results of endobronchial treatment of experimental purulent endobronchitis (PE) in dogs with low intensity He-Ne laser are presented. The endobronchial use of the laser energy in treatment of PE was shown expedient and valid. Comparison of the visual endoscopic picture with the findings of the histochemical and electron microscopic examination of the bronchial mucosa bioptates in the time course of the treatment provided establishment of the optimal regimen for the treatment of nonspecific PE with He-Ne laser.

[Probl Tuberk.](#) 1992;(5-6):21-4.

**[Optimal effectiveness of complex treatment of patients with chronic obstructive bronchitis by intravascular laser irradiation of blood]**

[Article in Russian]

[Ivaniuta OM, Dziublik AIa, Skopichenko VN.](#)

Results of combined treatment of 100 patients with chronic obstructive bronchitis are presented in the paper. Intravascular laser irradiation of blood had a favourable effect on the clinical disease course, normalized parameters of lipid peroxidation, produced a marked immune stimulating and anti-inflammatory action, controlled the blood coagulation system and improved rheological blood properties. Intravascular laser irradiation of blood included in the complex of therapeutic measures increased the efficiency of therapy in patients with chronic obstructive bronchitis by 12.0 +/- 2.6%.

[Probl Tuberk.](#) 1991;(9):64-7.

**[Dynamics of the indices of the immune system as affected by endobronchial laser therapy in patients with complicated tuberculosis of the lungs]**

[Article in Russian]

[Maliev BM, Selitskaia RP, Kupavtseva EA.](#)

The results of study of the local and humoral immune defense during endobronchial laser therapy of nonspecific endobronchitis in patients with newly diagnosed pulmonary tuberculosis are presented. Laser therapy proved to have no negative action on the humoral immunity in pulmonary tuberculosis patients during treatment of catarrhal and purulent endobronchitis, while a marked increase in IgM levels, thus rapidly reacting and well opsonizing antibodies can be regarded as a positive or stimulating the impact on the whole immune system. Endobronchial laser therapy for catarrhal and especially purulent inflammatory bronchial process in the multimodality treatment of patients with newly diagnosed pulmonary tuberculosis normalized parameters of the local immune system, especially that of locally secreted immunoglobulins, i.e. helium-neon laser radiation has a favourable influence on local immune defense, which is essential in increasing the efficacy of therapy of this category of patients.