

## Asthma

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### **Treatment of asthma and allergic rhinitis with low level laser and singulair in children**

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112 patients aged 9-18 years, with asthma and allergic rhinitis, were divided into 3 groups. Group 1 received laser therapy, as follows: acupoints (0.3 J/point), scanning technique (2 J/cm<sup>2</sup>), local regional ganglions (3 J/cm<sup>2</sup>), nose and oral mucous membranes (0.4 J/cm<sup>2</sup>) (670 and 830 nm, 25 mW -300 mW, CW and pulsed mode), three times/weekly, 12 days/monthly, during 3 months, together with classically drugs and 10 mg Singulair once daily. Group 2 was administrated placebo laser and Singulair, following the same protocol. Group 3 was treated only with classically drugs.

Low level laser therapy (LLLT) and Singulair have significantly reduced the symptoms, the duration and the dose of the corticosteroids, and have prolonged the disease remission better than other modality trials with side effects.

LLLT and Singulair improved the lung function and the quality of life in asthmatic patients with allergic rhinitis, too.

[Probl Tuberk Bolezn Legk.](#) 2007;(8):50-3.

### **[Efficiency of a combination of haloaerosols and helium-neon laser in the multimodality treatment of patients with bronchial asthma]**

[Article in Russian]

[Faradzheva NA.](#)

A hundred and thirty-eight patients with infection-dependent bronchial asthma, including 73 with moderate persistent asthma and 65 with severe persistent one, were examined. Four modes of a combination of traditional (drug) therapy (DT) and untraditional

(halotherapy (HT) and endobronchial helium-neon laser irradiation (ELI) one were used. The efficiency of the treatment performed was evaluated, by determining the time course of clinical symptoms of the disease on the basis of scores of their magnitude and the patients' condition. The findings indicated that in moderate persistent asthma, both HT and ELI in combination with DT exerted an equal therapeutic effect, which provided a good and excellent condition in 83.3% of cases. In severe persistent asthma, such a condition was achieved in 93.75% of cases only when multimodality treatment involving DT, HT, and ELI had been performed.

[Ter Arkh.](#) 2007;79(3):44-8.

## **[Intravascular laser irradiation of blood in the treatment of patients with bronchial asthma]**

[Farkhutdinov UR.](#)

AIM: To investigate action of intravascular laser blood irradiation (ILBI) on production of active oxygen forms (AOF) in patients with bronchial asthma (BA). MATERIAL AND METHODS: The trial included 59 BA patients aged 20 to 60 years (mean age 40.2 +/- 3.1 years). AOF generation in whole blood was registered with luminol-dependent chemiluminescence (CL). Basic therapy was given to 42 patients. ILBI was added to basic therapy in 17 patients. RESULT: CL of whole blood in BA patients depended on severity of inflammation. BA patients with intensive CL exposed to ILBI retained free radical oxidation defects and the disease symptoms. In low intensity of blood CL, ILBI activated A OF generation and raised treatment effectiveness. CONCLUSION: ILBI raises AOF production in the whole blood of BA patients. CL registration can be used for validation of ILBI administration in BA patients and control of

[Ter Arkh.](#) 2006;78(3):39-40.

## **[Clinical efficacy of target low-intensity laser radiation on the adrenal projection region in patients with bronchial asthma]**

[Article in Russian]

[Nikitin AV, Titova LA.](#)

AIM: To study efficacy of infrared laser radiation on the adrenal projection region in patients with bronchial asthma (BA). MATERIAL AND METHODS: The adrenal region of BA patients was exposed to infrared laser radiation. The effect was stated after blood count, examination of the urine and sputum, blood biochemical tests, blood hydrocortisone assay. RESULTS: Positive clinical response to laser therapy manifested with improvement of clinical, device and spirometric indices in BA patients. Blood levels

of hydrocortisone normalized. CONCLUSION: Infrared laser radiation of adrenal projection region reduced the number of asphyxia attacks, improved bronchial drainage, shortened the disease duration. The method is well tolerated, safe, easy to make and suggested for use in combined treatment of BA.

[Ter Arkh.](#) 2006;78(3):41-4.

## **[Outpatient use of laser therapy in bronchial asthma]**

[Article in Russian]

[Ostronosova NS.](#)

AIM: To analyse effects of outpatient laser therapy on the course of different forms of bronchial asthma (BA). MATERIAL AND METHODS: The examination has covered 466 patients with BA divided into three groups: group 1 patients received monotherapy with low-intensive laser radiation (LILR); group 2 - LILR plus conventional drug therapy (CDT); group 3 - CDT only. RESULTS: Group 1 and 2 patients achieved improvement after 2-3 sessions. Asphyxia attacks were less frequent and severe. These attacks disappeared to session 7-10, 10-12 in patients with exogenic, endogenic and mild, moderate mixed BA, respectively. The patients recovered sensitivity to sympathomimetics and methylxantines. Glucocorticosteroids (GCS) doses, hospital stay and temporary disability duration decreased. These two groups achieved remission within 0.5-1 year in 50% patients. Remission for 1-2 years was observed in 40% patients while in group. 3 - in 14%. CONCLUSION: The addition of laser therapy improves a BA course, results of outpatient treatment and rehabilitation, recovers bronchial sensitivity to sympathomimetics and xantine derivatives, reduces GCS dose and duration of hospital stay and disability in BA patients.

[Vopr Kurortol Fizioter Lech Fiz Kult.](#) 2006 Mar-Apr;(2):8-10.

## **[Low-intensity laser radiation in therapy of bronchial asthma]**

[Article in Russian]

[Ostronosova NS.](#)

Efficacy of low-intensity laser radiation (LR) was studied by changes in a histamine level in peripheral blood and external respiration function (ERF). A total of 228 patients with exogenic bronchial asthma (EBA) were divided into two groups: 167 patients with nonhormone dependent asthma (group 1) and 61 patients with hormone-dependent bronchial asthma (group 2). Low-intensity LR lowered a histamine level and improved ERF in both group 1 and 2. A definite negative correlation was found between histamine content and ERF parameters. Laser therapy alone is effective in mild EBA. For moderate

and severe EBA and hormone-dependent bronchial asthma a combination of conventional drug therapy with low-intensity LR is recommended.

[Ter Arkh.](#) 2004;76(3):20-3

## **[Efficacy of noninvasive hemolaserotherapy in patients with bronchial asthma and concomitant rhinosinusitis]**

[Article in Russian]

[Nikitin AV](#), [Treshchalina IuB](#).

AIM: To study efficacy of low-intensive infrared laser radiation impact on the tympanic membrane in patients with bronchial asthma (BA) and concomitant rhinosinusitis (RS). MATERIAL AND METHODS: 78 patients with moderate BA of a mixed type and concomitant chronic RS were divided into 3 groups: group 1 patients received medication plus infrared laser radiation of the tympanic membrane and paranasal sinuses; group 2 patients were exposed to supravenuous laser radiation (0.63 mcm); group 3 received pharmacotherapy alone. The effect of the treatment was assessed by spirometry, peakflowmetry and paranasal sinuses findings. RESULTS: The highest response was achieved in group 1 which manifested with positive changes in clinical, device and spirometric data on BA and x-ray data on RS courses. The least effective treatment was observed in group 3. CONCLUSION: Use of infrared laser radiation of the tympanic membrane and paranasal sinuses projection in the treatment of BA patients with RS is effective, nontoxic and easy to use both in hospitals and outpatient departments.

Med Pregl. 2003 Sep-Oct;56(9-10):413-8.

## **[Low power laser biostimulation in the treatment of bronchial asthma]**

[Article in Serbian]

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INTRODUCTION: Modern concept of acupuncture is based on the fact there are designated locations on the surface of human body, which are related to integrative systems of an organism by means of sensory nerves, correlating and synchronizing organ functioning, depending on external and internal conditions, by means of nervous and neurohumoral regulation of metabolic and regenerative processes, including also mobilisation of immunological, protective and antistress reactions. Apart from standard needle acupuncture, other methods of stimulating acupuncture points are also applied.

Due to invention of low power lasers, irradiation laser acupuncture has been introduced into routine medical practice, characterised by painless and aseptic technique and outstanding clinical results. MATERIAL AND METHODS: The investigation was aimed at defining therapeutic effects of low power laser irradiation by stimulating acupuncture points or local treatment of asthma. A prospective analysis included 50 patients treated at the Institute of Pulmonary Diseases in Sremska Kamenica during 2000, 2001 and 2002. Together with conservative treatment of present disease, these patients were treated with laser stimulation of acupuncture points in duration of ten days. During treatment changes of functional respiratory parameters were recorded. Results were compared with those in the control group. The control group consisted of the same number of patients and differed from the examination group only by not using laser stimulation. RESULTS: Patients with bronchial asthma presented with significant improvement ( $p < 0.0005$ ) of all estimated lung function parameters just 30 minutes after laser stimulation. Improvements achieved on the third and the tenth day of treatment were significantly higher ( $p < 0.001$  to  $p < 0.00005$ ) in the examination group in comparison with the control group. Further investigation confirmed that improvement of measured lung function parameters was significantly higher in younger patients, in patients whose disease lasted shorter, as well as in women. Patients with asthma, who were treated every three months for a one year period, presented with significantly lower frequency and intensity of attacks. DISCUSSION: The mechanism of laser stimulation activity in treatment of bronchial asthma is explained in detail, correlating our results to those obtained by other authors. CONCLUSIONS: A ten-day course of low-power laser stimulation of acupuncture points in patients with bronchial asthma improves both the lung function and gas exchange parameters. Positive effects of laser treatment in patients with bronchial asthma are achieved in a short time and they last long, for several weeks, even months. Successive laser stimulation in asthmatics prolongs periods of remission and decreases the severity of asthmatic attacks. Better positive effects of laser stimulation are achieved in younger asthmatics, in those with shorter disease history and in female patients. There is a negative correlation between effects of laser stimulation and patients' age and disease history. However, these characteristics do not affect response rate and speed but positive laser stimulation effects are achieved in a shorter period in female asthmatics.

Ter Arkh. 2002;74(3):25-8.

### **Efficacy of low intensity laser irradiation and sodium nedocromil in the complex treatment of patients with bronchial asthma]**

[Article in Russian]

**Landyshev IuS, Avdeeva NV, Goborov ND, Krasavina NP, Tikhonova GA, Tkacheva SI.**

AIM: To study efficiency of low-intensity laser radiation (LILR) and sodium nedokromil (tailed) in combined treatment of bronchial asthma (BA). MATERIAL AND

**METHODS:** The choice of the treatment depended on the activity of bronchial inflammation and the presence of contraindications. Laser was used on the skin in the area of the lung and great vessels projection, endobronchially. Tailed was given in inhalations and irrigations of the tracheobronchial tree during therapeutic fibrobronchoscopy. These methods were used in combined treatment of 220 BA patients. **RESULTS:** Combined use of LILR and tailed proved highly effective and safe in BA. Cytological markers of cell reactions of the bronchopulmonary system on the action of LILR were revealed. **CONCLUSION:** Availability, good reproducibility, cost-effect efficacy and safety make LILR one of the most beneficial nonpharmacological treatments for bronchial asthma.

## **THE EFFECTIVENESS OF A LASER BEAM THERAPY IN A COMPLEX HEALTH RESORT TREATMENT OF PATIENTS WITH BRONCHIAL ASTHMA**

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Rehabilitation and health improvement of patients with chronic, non-specific lung diseases at the health resort of Kislovodsk with the help of a wide application of the natural physical factors alongside with the laser beam therapy is of great importance. The observation covered 79 patients with bronchial asthma (BA) of the age range from 32 to 56 with an atonias and infectious-atonias form under a mild and moderate flow. At the initial stage the prevailing majority of the observed patients demonstrated a considerable deviation from the norm concerning the parameters of external breathing function (EBF-83,1%), more than half of the patients-that of the level of adaptation reactions (Garkavi-Kvakina-Ukolova), as well as of the immunity status (V.G.Vogralik, M.V.Vogralik), 73,4% and 62,6% accordingly, and almost half of the patients - that of the peroxide oxidation of lipids (POL -42,8%) . A group of 54 patients (the Main group, MG) received an infra-red, continuous wave laser therapy by means of the "AZOR-2K" device, alongside with the general complex spa treatment (natural factors, carbonic mineral baths, massage, electro- and curative physical therapy, etc.), which the Reference group (RG) of 25 patients received. The total aggregated dose of laser energy per session was 12 J , the course of treatment - 10-15 procedures. As a result, the overwhelming majority of the patients (98,4%) enjoyed an improvement of clinical, laboratory and functional parameters , group-wise : MG - 99,1%; RG -92,3%. A differential analysis of the results obtained in the MG itself has revealed a higher, although unreliable percent of correction of the acquired immunodeficiency and of optimisation of adaptation processes in comparison with a degree of positive dynamics concerning other parameters (EBF, POL). Taking into consideration previous results the observations demonstrated that the introduction of the laser therapy into the complex health resort treatment enhances for certain the effectiveness of the treatment of patients with BA. We should specifically mention the positive effect of the physical factors, in combination with the laser therapy, on the level of adaptation reactions and their

immunocorrective influence with patients, suffering from BA complicated by the secondary immunodeficiency.

### **[Effects of laser therapy on lipids and antioxidants in blood of patients with bronchial asthma]**

[Article in Russian]

**Rakitina DR, Urias'ev OM, Garmash VIa, Ivanova MV, Krasnovid NI, Lebedev AV.**

Laser therapy was assessed for effects on lipoperoxides and free radical catchers in blood lipids of patients with bronchial asthma (BA). When a group of 52 BA patients was compared to healthy donors by dienic conjugates, vitamin E and overall lipid-soluble antioxidants levels in the whole blood and plasma, these appeared higher in the asthmatics. Combination of laser therapy with conventional treatment returned these parameters close to normal.

### **THE EFFECIENCY OF THE LASER THERAPY IN THE TREATMENT OF BRONCHIAL ASTHMA SUFFERED BY CHILDREN**

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In the recent years there is a considerable increase of bronchial asthma diseases, the tendency of the aggravation of this disease being more and more noticeable herewith . There is also a tendency for more and more resistance to the therapy conducted . That is why the bronchial asthma treatment still remains one of the most crucial and viable issues in the contemporary medicine . According to the literature data and facts , laser therapy has been successfully applied for more than 10 years . We have applied this method to 49 children suffering from bronchial asthma. Laser therapy was effected by the infrared semiconductor laser AL-09 . All the patients were split into 3 groups . The first group comprised 19 children , who have had intradcrmal laser therapy. The 16 pa-tients of the second group have received I/V (intravenous) laser therapy . The rest 14 children of the third group have received laser therapy combined with plasmapheresis . The sample group consisted of 17 children who have had Sodium Gromoglicatc treat-ment combined with symptomatic means . The efficiency of the treatment effected was assessed in accordance with the 3 point system, 2 and 3 points being considered satis-factory. After the treatment has been completed the satisfactory results breakdown looks as follows : the first group - 56.2% ; the second group - 75% ; the third group -85.7% of the cases . In control group the positive results arc registered only at 29.4% of the children. All the abosc said shows that laser therapy proved to be an effective method of the bronchial asthma treatment for children, I/V laser application being more effective than its intravenous application. The major therapeutic effect of the combination of laser therapy with plasmapheresis is , probably , connected with the application of plasmapheresis .

Laser application during the bronchial asthma treatment for children allows one to considerably reduce the medication pressure on the human body.

Ter Arkh. 1997;69(12):49-50.

### **The treatment of bronchial asthma with LLLT in attack-free period in children.**

**Ailioaie C, Ailioaie L.**

98 patient aged 10-18 years, diagnosed with moderate or severe asthma were divided into three groups. -Group 1: 35 patients received laser acupuncture using extrameridian acupuncture points plus scanning. Lasers used were 670 and 830 nm, 50 and 200 mW respectively, in continuous mode. Treatment was given twice daily 10 days per month, 3 months in total. No other therapy was given. -Group 2: 33 patients inhaled Salmeterol xinofoat 2 x 25, twice daily for 3 months. -Group 3: 30 patients were treated with Theophylline retard 15 mg/kg every 12 hr for 3 months. Results: A noticeable improvement in the clinical, functional and immunological characteristics were observed in 83% of the patients in group 1, 70 in group 2 and 53 in group 3. There were no side effects in the laser group.

Minerva Med. 1983 Jun 30;74(27):1683-8.

### **[Antiasthma therapy with laser radiation of the stellate ganglia]**

[Article in Italian]

**Bence L, Dussert G.**

The authors present a 42-case series of bronchial asthma treated with laser therapy. The technique consists in the use of a diode laser with transcutaneous irradiation projected anteriorly into stellar ganglion. The clinical cases are presented together with the therapeutical results, pointing out how children are more receptive to this therapy and outlining the importance of timing and hour of treatment.