Color light therapy in the treatment of bronchial asthma and obstructive pulmonary disease

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SUMMARY

An analysis of publications on the clinical efficacy of the use of color light therapy in the treatment of the most common respiratory diseases - bronchial asthma and obstructive pulmonary disease - is presented. In color therapy, non-laser (LED) sources of optical radiation of various spectral composition were used. The effectiveness of color light therapy in the complex treatment of pulmonary diseases gives rise to the use of this method both in stationary and in outpatient settings.

Key words: phototherapy, color light therapy, bronchial asthma,obstructive pulmonary disease, optical incoherent radiation of the visible range, LEDs, zones and points of the skin.

RESUME

The analysis of publications on clinical efficiency of color light therapy in the treatment of the most common respiratory diseases - bronchial asthma and obstructive pulmonary disease is presented. Non-laser (light emitting diodes) sources of optical emission of various spectrum were used for color light therapy. Efficiency of color light therapy in complex therapy of bronchial asthma and obstructive pulmonary disease gives basis for application of this method both in hospital and polyclinic conditions.

Keywords: phototherapy, color light therapy, bronchial asthma, obstructive pulmonary disease, optical non-coherent emission in visual range, light emitting diodes, zones and points of skin.

INTRODUCTION

Respiratory diseases are currently an important social and medical problem, and in the near future they will occupy one of the first places among the causes of death along with diseases of the cardiovascular system and cancer [1, 2]. In the general structure, the incidence of respiratory diseases has been steadily increasing over the past 25 years - according to official statistics, the respiratory organs account for about 40% of all cases of morbidity, which exceeds the level for other classes of diseases. Among respiratory diseases, the most common forms are acute diseases: respiratory viral infections, bronchitis and pneumonia, the proportion of which is 94.2 among the adult population, respectively; 4.0; 1.8%, and 96.6; 2.9; 0.5% - among the child population.

METHODS

Characteristics of the selected treatment methods

Most of the methods of pharmacotherapy, widely used in the treatment of respiratory diseases, are often accompanied by adverse consequences in the form of various

complications and allergies. The use of natural and preformed physical factors in therapy can reduce the drug load or even eliminate it altogether. Color light therapy as a treatment with light has no side effects, and the method itself is available for use in a hospital or outpatient clinic or at home [3].

Electronic databases

The search for publications in the domestic and foreign press was carried out through the Internet resources (e.Library.ru, Medline.com, PubMed.com,) in the period from 1991 to March 2020. English language.

Publication search algorithm

The search was carried out using keywords: respiratory diseases, respiratory diseases of the lungs, bronchial asthma, chronic obstructive disease, phototherapy, color light therapy, visible light and LEDs in combination with each other.

Selection criteria for articles

The selection criteria for articles were as follows: original articles published in peer-reviewed scientific journals, randomized controlled trials comparing color light therapy to control studies (placebo) using different wavelengths (colors) of visible optical radiation, intensity, time, zones and points of influence. In the case of finding articles identical in content by the same authors in the process of processing the resulting data set, the results were combined.

Results of generalized analysis of publications

As a result of the search for publications, two directions were identified for analyzing the use of color light therapy in the treatment of respiratory diseases - bronchial asthma and chronic obstructive pulmonary disease (Table 1).

Table 1

Clinical Results of Color Light Therapy
in the treatment of diseases of the broncho-pulmonary system

№№ / пп	Disease	author (authors)	Options impact (length waves, nm; area and time of exposure)	results	Lite-rathura
1.	Bronchial asthma	Nikitin A.V., Orlova E.V., Kryuchkova A.V., Malyukov D.A., Titova L.A., Zolotareva M.A.	570 nm, 470 nm, 3000 Hz, contact on reflexogenic zones for 1 min for each zone, total time 12 minutes, course 10-12 daily procedures.	Normalization indicators of external respiration and clinical laboratory tests in a shorter time with color therapy with green color compared to blue.	[4]
2.	Bronchial asthma	Kryuchkova A.V.	570 nm, 470 nm, 3000 Hz, contact on supraclavicular	In the group of patients with green color therapy decreased in color	[5]

			areas to the right and left, II and III intercostal space on both sides of the sternum and paravertebral right and left at the level of ThIII-ThV along 1 minute for each zone, total time 12 min, once a day, 6 days a week, course 10-12 procedures.	number of attacks choking, decreased the number of wheezing in lungs, cough, tachycardia, shortness of breath, tachypnea, normalized some clinics laboratory indicators.	
3.	Bronchial asthma	Kryuchkova A.V.	570 nm, 470 nm	Application color therapy green color turned out to be more more effective than blue, allowed to reduce number bronchodilators in more early terms and lengthen the terms of remission diseases.	[6]
4.	Bronchial asthma	Khamidova Z.N., Tukhtaev K.T., Zhabborova Z.B.	600-2000 nm, impulses with frequency 30-40 bpm, irradiation back area and root projections lungs, once a day from 6 to 20 minutes, course 14-16 procedures.	Positive dynamics to 3-4 days of treatment - reduction of cough, shortness of breath, improvement sputum discharge, indicators of spirometry, reduction of obstructive change, decrease edema of the bronchial mucosa and their occlusion.	[7]
5.	Bronchial asthma	Kryuchkova A.V., Semynina N.M.	570 nm, 470 nm, reflexogenic zones	Normalization of the main clinical signs earlier in the group of patients with green color therapy, on the 12th day the indicators improved quality of life.	[8.9]
6.	Bronchial asthma	Provotorov V.M., Filatova Yu.I.	unpolarized impulse red light 624 ± 6 nm	Positive dynamics clinical indicators for combined the use of color therapy and ceruloplasmin.	[ten]
7.	Bronchial asthma	Provotorov V.M., Filatova Yu.I., Shegida Yu.V., Pavlidina E. D., Pankova	unpolarized impulse red light 624 ± 6 nm	Decrease in level superoxide dismutase in serum after color therapy treatment.	[eleven]

		G.N., Bagmutova M.V.			
eight.	Chronic obstructive disease lungs	Nikitin A.V., Marks S.I., Mishina Yu.V., Bulueva HA.	530 nm impact on point between spinous shoots CVII–ThI, the point between the spinous processes ThI–ThII, points in II intercostal space on sredinoklyuchich noah line to the right and to the left, points in the III intercostal space along midway clavicular line right and left	Reduction of major clinical indicators of the disease began show up at 10-12th day and to a greater extent through 1 month. Indicators computer spirometry improved by 5-6th day.	[12]
nine.	Chronic obstructive disease lungs	Nikitin A.V., S.I. Marks	530 nm, impact two points along second and third intercostal space on midway clavicular line right and left, point between spinous processes CVII–TI and the point between spinous processes TI–TII vertebrae, 1 min per point, total time 6 minutes, 10-12 procedures.	Improvement of the main clinical manifestations diseases (reduction of shortness of breath, cough, improved discharge phlegm) and bronchial patency in a group sick after color therapy.	[13.14]

The effectiveness of the use of color light therapy in the treatment of bronchial asthma

A study of the clinical efficacy of the use of color light therapy in the treatment of bronchial asthma included 122 patients (62 men, 60 women aged 19 to 78 years) with a mixed form of the disease of moderate severity, who were divided into four groups [4]. In the first group (34 people), patients received green color therapy (wavelength 570 nm), the second group of patients (32 people) received blue color therapy (wavelength 470 nm), the third control group (32 people) received traditional drug therapy, and the fourth group (24 people) received a placebo. The exposure was carried out using the LED block of the Mustang2000 apparatus with a frequency of 3000 Hz, contacting the reflexogenic zones for 1 min per zone with a total exposure time of 12 minutes and a course of 10–12 procedures. In patients of all groups, the function of external respiration was studied and clinical and laboratory analyzes were performed for 12 days. As a result of the treatment, it was found that statistically significant normalization of external respiration parameters and clinical laboratory analyzes occurred in more

short terms in patients who received green color therapy. A less pronounced improvement in similar indicators was observed in the group of patients as a result of blue treatment, which was noted on days 10–12, while in the green color treatment group, the improvement occurred earlier and fell on days 4–5 of the course of treatment. The results obtained indicate that the inclusion of color light therapy in green in the complex treatment of patients with mixed form of bronchial asthma should be considered expedient, since this method has a pronounced anti-inflammatory and bronchodilator effect, contributes to the normalization of the main clinical parameters and lengthens the remission period.

The study of the effectiveness of treatment was carried out on 122 patients with mixed form of bronchial asthma of moderate severity, who underwent a course of color light therapy in green (wavelength - 570 nm) and blue (wavelength - 470 nm) colors [5]. The exposure was carried out by contact, one minute at a time, on the following reflexogenic zones: supraclavicular areas on the right and left, II and III intercostal space on both sides of the sternum, paravertebrally on the right and left at the level of the ThIII – ThV vertebrae. The total exposure time using the Mustang021 apparatus was 12 minutes with a radiation frequency of 3000 Hz and consisted of 10–12 daily procedures, 6 days a week, once a day at the same time ± 2 hours. Analysis of the data obtained showed that the normalization of the main clinical and laboratory signs was significantly earlier, compared with the control group, was observed in the group of patients receiving green color therapy. In this group of patients, the number of attacks of suffocation decreased, the number of wheezing in the lungs, cough, tachycardia, shortness of breath, tachypnea decreased, and some clinical and laboratory parameters were normalized. Thus, the use of color light therapy in patients with mixed forms of bronchial asthma makes it possible to achieve significant positive dynamics in most clinical and laboratory parameters and is an effective method that does not have side effects, which can be used both in inpatient and outpatient settings. and also some clinical and laboratory parameters were normalized. Thus, the use of color light therapy in patients with mixed forms of bronchial asthma makes it possible to achieve significant positive dynamics in most clinical and laboratory parameters and is an effective method that does not have side effects, which can be used both in inpatient and outpatient settings. and also some clinical and laboratory parameters were normalized. Thus, the use of color light therapy in patients with mixed forms of bronchial asthma makes it possible to achieve significant positive dynamics in most clinical and laboratory parameters and is an effective method that does not have side effects, which can be used both in inpatient and outpatient settings.

The possibility of using non-laser light sources in the complex treatment of patients with bronchial asthma was studied on 122 patients (62 men and 60 women aged 18 to 78 years) with a mixed form of moderate severity [6]. The patients were divided into four groups; the first (34 people) received color therapy with green (wavelength - 570 nm), the second (32 people) - blue (wavelength - 470 nm), the third control group (32 people) received only drug therapy, and the fourth (24 people) received a placebo effect. Patients of all groups underwent clinical diagnostic and laboratory examination, which determined the frequency of asthma attacks, cough, the severity of shortness of breath and chest congestion, wheezing, rapid breathing, tachycardia, as well as respiratory function, white blood count and ESR. Comparison of the dynamics of the main clinical and laboratory parameters in patients of the first two groups revealed significant improvements in those receiving color light therapy in green compared to the control group and the group after therapy with blue. At the same time, the use of blue color therapy turned out to be more effective in patients of this group in comparison with the control group. Analysis of the nature of indicators of the function of external respiration and bronchial patency revealed statistically significant positive dynamics in patients of the first group as a result of the use of green color therapy compared with the effect of blue in the second group and traditional drug therapy in the third. The use of green color therapy made it possible to reduce the number of bronchodilators used at an earlier date in patients of this group compared with the group treated with blue and the control group. Long-term results of the conducted color light therapy, which were analyzed after 3; 6 and 12 months in 36 patients receiving various types of treatment showed that the maximum lengthening of the remission period was observed in patients receiving green therapy.

Thus, the results obtained confirm the advisability of including in the complex therapy of patients with moderate bronchial asthma green color therapy from non-laser sources, which has a pronounced anti-inflammatory and bronchodilator effect. It has been shown that color light therapy in green contributes to reliably early normalization of the main clinical and laboratory parameters, improves the function of external respiration and bronchial patency, as well as a decrease in the volume of bronchodilators taken by patients and an increase in the duration of remission of the disease.

The assessment of the dynamics of the functional parameters of respiration at the stage of rehabilitation was carried out in 40 patients with bronchial asthma of I – II severity after the use of light therapy in the form of concentrated sunlight in the visible and IR ranges with wavelengths from 600 to 2000 nm [7]. The studies used two equal groups: the main one, in which the patients, in addition to the basic therapy, were exposed to pulsed radiation with a frequency of 30 to 40 Hz from the "SLU2" apparatus, and the control group - without light therapy. The area of the back and the projection of the roots of the lungs were irradiated once a day in a course of 14-16 procedures, starting from 6 minutes. Then, the exposure time was increased by 2 min daily, and upon reaching 20 min, the time was decreased by 2 min, bringing it to the initial 6 min. The degree of bronchial obstruction in patients of both groups was investigated by the spirometry method according to the value of the forced vital capacity of the lungs and the maximum volumetric velocity in the bronchi of large, medium and small calibers. As a result of treatment, the patients of the main group showed positive dynamics by a number of clinical indicators by days 3-4 compared to the control group - coughing, shortness of breath decreased, sputum discharge improved with further cessation by the end of the course of treatment. Spirometry indices in patients of the main group significantly improved in comparison with the control group, and by the end of the course of treatment approached the proper values. The results obtained are evidence of a decrease in obstructive changes, a decrease in edema of the bronchial mucosa and their occlusion, which contributes to an increase in bronchial patency. Thus,

Evaluation of the effectiveness of LED color light therapy in the complex treatment of bronchial asthma was carried out on 128 patients (59 men and 69 women) with a mixed form of moderate severity during an exacerbation of the disease [8, 9]. All patients under observation were divided into four groups, in which all received traditional drug therapy. In this case, the patients of the first group (33 people) received color therapy in green (wavelength - 570 nm), the second group (34 people) - in blue (wavelength - 470 nm). Patients of the third group (32 people) made up the control group, and in the fourth group (29 people), patients received placebo treatment. In evaluating the therapy, we used such clinical and laboratory indicators as the frequency of asthma attacks, the severity of cough, shortness of breath, the presence of wheezing, tachycardia, tachypnea, leukocytes and blood eosinophils, ESR. The patient's subjective level of dyspnea was assessed using the Borg integral scale, and the severity of cough was assessed using a visual analogue scale (VAS). As additional information that allows objectifying the patient's subjective feelings and assessing their relationship with clinical indicators, the quality of life was studied using the adapted specialized SF36 questionnaire. Analysis of the results of the use of color therapy showed that the normalization of the main clinical signs was observed statistically significantly earlier in the first group of patients who received color therapy in green, compared with patients in the control group and the placebo group. In this group, the patients had a decrease in the number of attacks of suffocation, wheezing, the severity of cough The patient's subjective level of dyspnea was assessed using the Borg integral scale, and the severity of cough was assessed using a visual analogue scale (VAS). As additional information that allows objectifying the patient's subjective feelings and assessing their relationship with clinical indicators, the quality of life was studied using the adapted specialized SF36 questionnaire. The analysis of the results of the use of color therapy showed that the normalization of the main clinical signs was observed statistically significantly earlier in the first group of patients who received color therapy in green, compared with patients in the control group and the placebo group. In this group, the patients had a decrease in the number of attacks of suffocation, wheezing, the severity of cough The patient's subjective level of dyspnea was assessed using the Borg integral scale, and the severity of cough was assessed using a visual analogue scale (VAS). As additional information that allows objectifying the patient's subjective feelings and assessing their relationship with clinical indicators, the quality of life was studied using the adapted specialized SF36 questionnaire. Analysis of the results of the use of color therapy showed that the normalization of the main clinical signs was observed statistically significantly earlier in the first group of patients who received color therapy in green, compared with patients in the control group and the placebo group. In this group, the patients had a decrease in the number of attacks of suffocation, wheezing, the severity of cough and the severity of cough - using the visual analogue scale (VAS). As additional information that allows objectifying the patient's subjective feelings and assessing their relationship with clinical indicators, the quality of life was studied using the adapted specialized SF36 questionnaire. Analysis of the results of the use of color therapy showed that the normalization of the main clinical signs was observed statistically significantly earlier in the first group of patients who received color therapy in green, compared with patients in the control group and the placebo group. In this group, the patients had a decrease in the number of attacks of suffocation, wheezing, the severity of cough and the severity of cough - using the visual analogue scale (VAS). As additional information that allows objectifying the patient's subjective feelings and assessing their relationship with clinical indicators, the quality of life was studied using the adapted specialized SF36 questionnaire. Analysis of the results of the use of color therapy showed that the normalization of the main clinical signs was observed statistically significantly earlier in the first group of patients who received

according to VAS, shortness of breath according to Borg, as well as the frequency of respiratory movements and heart contractions. In the second group, in which color therapy was carried out in blue, the severity of the main clinical signs in patients was characterized only by a tendency towards normalization in comparison with the third and fourth groups and did not have statistical significance. Against the background of the treatment on the 12th day of observation, there was a statistically significant improvement in the quality of life indicators for some indicators ("physical activity", "the role of physical problems in limiting life activity", "bodily pain", "general perception of health") in patients of all groups. At the same time, in patients of the first group, who received green color therapy against the background of traditional drug therapy, on the 12th day of treatment, these indicators of quality of life were significantly higher. than similar indicators in patients of the second, third and fourth groups. The research results showed that the use of green LED color light therapy in complex treatment contributes to an earlier normalization of the main clinical and laboratory parameters, demonstrates a positive effect on the quality of life of patients with bronchial asthma and a high clinical effectiveness of this method in the absence of side effects. It is recommended to include in the complex therapy of patients with bronchial asthma color light therapy in green (wavelength - 570 nm) when exposed to reflexogenic zones, which has an anti-inflammatory and bronchodilator effect. that the use of green LED color light therapy in complex treatment contributes to an earlier normalization of the main clinical and laboratory parameters, demonstrates a positive effect on the quality of life of patients with bronchial asthma and a high clinical effectiveness of this method in the absence of side effects. It is recommended to include in the complex therapy of patients with bronchial asthma color light therapy in green (wavelength - 570 nm) when exposed to reflexogenic zones, which has an anti-inflammatory and bronchodilator effect. that the use of green LED color light therapy in complex treatment contributes to an earlier normalization of the main clinical and laboratory parameters, demonstrates a positive effect on the quality of life of patients with bronchial asthma and a high clinical effectiveness of this method in the absence of side effects. It is recommended to include in the complex therapy of patients with bronchial asthma color light therapy in green (wavelength - 570 nm) when exposed to reflexogenic zones, which has an anti-inflammatory and bronchodilator effect.

The state of the oxidative-reduction status of patients with bronchial asthma was studied against the background of complex treatment using color light therapy with unpolarized pulsed red [10]. The study included 125 patients with bronchial asthma of mixed origin: 54 men (43.2%) and 71 women (56.8%) aged 18 to 65 years. All patients were divided into three groups, in each of which conventional therapy was carried out, in addition to which, in the first group (40 people), patients received an antioxidant (ceruloplasmin), in the second group (45 people), treatment with a pulsed red color (wavelength - 624 ± 6 nm) using the "Svetativ" apparatus, in the third group (40 people) the patients received both ceruloplasmin and color therapy. Patients of all groups underwent a comprehensive examination using clinical laboratory, functional and X-ray studies, as well as determination of indicators of the prooxidant-antioxidant system. The results of the studies showed that the positive dynamics of clinical indicators and parameters of the prooxidant-antioxidant system was observed in all groups of patients, however, the most pronounced significant effect was observed with the combined use of color therapy and ceruloplasmin in the complex treatment. This conclusion was obtained on the basis of significant improvements in clinical indicators in patients of the third group compared with the first and second groups. Thus, the expediency of using color light therapy and the antioxidant ceruloplasmin in the complex treatment of patients with bronchial asthma has been shown.

Evaluation of the dynamics of the parameters of the prooxidant-antioxidant system under the influence of color light therapy was carried out on 70 patients aged 18 to 60 years with severe uncontrolled bronchial asthma of mixed origin [11]. Patients 32 (45.7%) men and 38 women (54.3%) were divided into two equal groups, in the first of which color therapy was carried out locally with unpolarized pulsed red color (wavelength 624 ± 6 nm) using the "Svetaactive" device against the background of standard therapy, in the second - only standard therapy. All patients underwent a comprehensive examination, which included clinical laboratory, functional and X-ray studies, along with the determination of some parameters of the prooxidant-antioxidant system (malondialdehyde, superoxide dismutase and sulfhydryl groups) in the blood serum.

which was evaluated in patients of both groups, demonstrated a significant decrease in the level of superoxide dismutase after treatment with pulsed red light. The rest of the parameters (superoxide dismutase and sulfhydryl groups) tended to decrease after treatment in patients of both groups. It is summarized that the use of pulsed red color light therapy reduces the imbalance in the prooxidant-antioxidant system in patients with severe uncontrolled bronchial asthma of mixed genesis.

The effectiveness of the use of color light therapy in the treatment of chronic obstructive pulmonary disease

In the treatment of patients with chronic obstructive pulmonary disease, along with basic pharmacotherapy, color light therapy was also used, taking into account the high efficiency of its application [12]. Examination and treatment of 60 patients with chronic obstructive pulmonary disease of moderate severity (38 men and 22 women) aged 40 to 65 years, who have no occupational hazards, were carried out. In the first (main) group of 42 patients, in addition to drug treatment, green color therapy (wavelength - 530 nm) was prescribed using LED radiation from the Mustang 2000 apparatus. In the second control group of 18 patients, only traditional drug therapy was used without the use of green color treatment. The impact was performed on the points of reflexogenic zones: the point between the spinous processes CVII–ThI, points between the spinous processes ThI–ThII, in the II intercostal space along the midclavicular line on the right and left, points in the III intercostal space along the midclavicular line on the right and left. The procedures were carried out at the same time ± 2 hours, 6 days a week, once a day, the course of treatment consisted of 10–12 procedures with an exposure time per field of 1 min and a total exposure time of 6 min. The effectiveness of treatment in patients of the main and control groups was assessed on the 1–2 day of hospitalization, after 10–14 days, after 1 and 3 months by the clinical manifestations of the disease (cough, shortness of breath) and computer spirometry data, which was carried out in order to determine bronchial patency ... When analyzing clinical indicators, it turned out that that in the patients of the main group, the decrease in the main clinical indicators of diseases was more pronounced and began to appear much earlier (by 10–12 days and to a greater extent after 1 month) than in the patients of the control group. Indicators of computer spirometry improved in the main group on average 5–6 days earlier than in the control group of patients, which made it possible to reduce the need and reduce single and daily doses of medications without deteriorating the well-being of patients. Thus, the use of color light therapy in patients with chronic obstructive pulmonary disease promoted early normalization of the main clinical signs and a longer remission of the disease. Therefore, color light therapy can be considered a fairly effective treatment method,

The effectiveness of the use of color light therapy in combination with basic drug therapy was studied in order to develop an integrated approach to the treatment of patients with chronic obstructive pulmonary disease [13, 14]. Examination and treatment were carried out in 92 patients (54 men and 38 women) aged 40 to 65 years, who were divided into two groups: the main (56 people) and control (36 people). Patients of the main group, against the background of traditional drug treatment, received a course of green color therapy (wavelength - 530 nm) using the "Mustang 2000" apparatus. A remote effect was carried out on two points along the second and third intercostal space along the midclavicular line on the right and left: the point between the spinous processes CVII–TI and the point between the spinous processes TI–TII vertebrae. The exposure time per point was 1 min, with a total exposure time of 6 min and a course of treatment of 10–12 procedures. The examination of patients in both groups, which consisted in the analysis of the dynamics of clinical manifestations of diseases and laboratory test data, was carried out on the 1st - 2nd day

hospital stay, after 10-14 days and then after 1 and 3 months. Clinical indicators such as cough, shortness of breath, sputum discharge, physical activity, laboratory test results (leukocyte count, ESR, C-reactive protein) and computer spirometry data were assessed. The results of the studies showed that the patients of the main group, who received a course of green color therapy, had a significant improvement in the main clinical manifestations of the disease (reduction of shortness of breath, cough, improved sputum discharge) and respiratory function than in the control group. Evaluation of computer spirometry data revealed a significant improvement in individual parameters of bronchial patency in patients of the main group, while in the control group there was only a tendency. According to the results of laboratory tests, a significant decrease in the number of leukocytes and the level of C-reactive protein in both groups was found, however, no significant differences were found. In conclusion, it is noted that the use of color light therapy in patients with chronic obstructive pulmonary disease in combination with traditional drug treatment contributed to the normalization of the main clinical signs, improvement of external respiration parameters and, being an effective method of treatment, can be recommended for widespread use in clinical practice.

CONCLUSION AND FURTHER PERSPECTIVESColor

V treatment light therapy of diseases bronchopulmonary systems predominantly used the incoherent and unpolarized optical study of green, blue and red. A comparative assessment showed that the use of green color therapy in the treatment of bronchial asthma was more effective than blue, which made it possible to reduce the number of bronchodilators in the earlier stages of the course of the disease, and was also characterized by an extension of the remission period. The use of color light therapy in the treatment of chronic obstructive pulmonary disease has been shown to reduce shortness of breath, cough, and improve sputum discharge. As a result of the course of color therapy, the patients also showed an improvement in the function of external respiration and individual parameters of bronchial patency. The results of the use of color light therapy in persons suffering from bronchopulmonary pathology, showed a significant improvement in the main clinical manifestations of the disease, an increase in physical activity and quality of life. Thus, the use of color light therapy in the complex treatment of diseases of the bronchopulmonary system contributes to an earlier normalization of the main clinical and laboratory signs of the disease, an improvement in bronchial patency, a decrease in the dose of bronchodilators taken, an extension of the remission period, and can be recommended for use in clinical practice.

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