INTRODUCTION
To date, chronic obstructive pulmonary disease (COPD) remains one of the biggest health problems, according to WHO, the disease affects 0.8% of the world’s population, as of 2030, according to experts’ forecasts, will be the third leading cause of death in the world [1.2.3]. A significant prevalence of COPD, an increase in the level of disability in working age, inadequate effectiveness of existing treatment and prevention methods, necessitates the development of new ways to optimize treatment [1].

Considering the significant place of transport violations of the tracheo-bronchial secretion in the formation of respiratory diseases, one of the main tasks of therapy is the sputum dilution, reducing its adhesiveness and improving the drainage properties of the respiratory tract. A promising direction is the use in one dosage form of a combination of several agents at once that affect various pathogenetic mechanisms of violation of the production of a secret in the tracheobronchial tree. The combination of these properties in one drug contributes to more effective improvement of mucosyal clearance and simultaneous reduction of clinical symptoms, as well as increased adherence to therapy, which is especially relevant in outpatient practice. Optimal correction of the most important violations in secretion of bronchial glands, restoration of the adequacy of drainage functions of the respiratory tract, in our opinion, determines the combination of ambroxol and acetylcysteine. Among the many drugs with simultaneous mucolytic and muco-regulating effects used in the treatment of infectious-inflammatory diseases of the respiratory system in adults and children, the PulmoBRIZ drug, which includes ambroxole hydrochloride and acicillin, showed high therapeutic effectiveness [4].

It should be noted that in recent years, in the rehabilitation of patients with COPD, the method of halotherapy simulating the microclimate of salt mines is widely used [5]. Halotherapy promotes increased resistance of the body to negative external factors, including psycho-emotional stress, prevention of colds. Also known as anti-inflammatory and immunomodulatory effects of aeroion sodium chloride [5.6]. When the respiratory fraction of aerosol hits the terminal parts of the bronchial tree, due to the osmotic effect, the activation of the drainage function of the bronchi occurs, increases the amount of detachable sputum. On the one hand, it helps to eliminate one of the components of broncho-obstruction, and on the other – significantly increases the effectiveness of basic drug therapy. All this contributes to the positive dynamics of clinical indicators in patients with COPD and the consolidation of achieved remission [1].

THE AIM
The aim is to increase the effectiveness of the treatment of exacerbation of COPD group B GOLD II with the use of combined therapy of the combined drug PulmoBRIZ
containing two components – ambroxol and acetylcysteine and the course of halotherapy.

MATERIALS AND METHODS

We observed 60 patients with COPD B, GOLD II. The average age of patients was 47.8±2.4 years. The diagnosis was exposed in accordance with the order of the Ministry of Health of Ukraine 555 dated June 27, 2013, based on a comprehensive examination. The assessment of the symptoms of the disease, the results of laboratory and instrumental research methods (blood tests, sputum, chest X-ray, external respiration function (ERF), bronchodilation tests was carried out. All patients received therapy in accordance with the protocol for assisting patients with COPD [7,8].

Patients with COPD were divided into two groups: the first – the main (n = 30) received complex basic therapy: clarithromycin 500 mg twice daily, tiotropium bromide for 1 breath 2 times a day, budesonide 50 micrograms through a nebulizer two times a day for 7 days. Additionally we prescribed the combined preparation of Ambroxol and Acetylcysteine (Pulmobreathe) – 200/30 to 1 tabl. 2 times a day for 7 days, and from the 3rd day were added halotherapy sessions. We have used the IONNA halogen generator in the mode (ionizer 30±50% capacity, volume of air flow 15±20 m$^3$/h, temperature in the chamber 40±50°C, duration 40±60 min.) 1 time per day for 10 days.

The second group – is a control (n=30), followed only basic therapy. This group has not taken mucolytics and halotherapy sessions during all time of treatment.

The effectiveness of treatment was evaluated in both groups according to the dynamics of reduction of clinical symptoms of COPD, changes in laboratory, instrumental and functional research methods. Before treatment, and after 12 days, the ERF parameters were analyzed, the symptoms were evaluated using questionnaires – Modified MRC Dyspnea Scale (mMRC) and COPD Assessment Test (CAT) [7]. Psychological status was determined with the questionnaire Ch.D. Spielberger – Yu.L. Hanin in patients with the main group receiving the combined drug ambroxol and acetylcysteine and halotherapy in addition to the basic therapy, a significant growth of FEV$_1$ was observed at 8.3% (72.5±1.1)% to (79.1±1.8)% (p<0.05); the growth of the FEV$_1$/FVC % was 7.2% (72.3±1.4)% to (79.6±1.9)% (p<0.05), while in the control group, the growth of FEV$_1$ was noted at 5.5% – from (71.7±1.6)% to (75.7±1.2)% (p<0.05); the of FEV$_1$/FVC o was 4.6% – from (71.2±1.3) to (74.5±1.9) (p<0.05), that is, these indicators only tended to improve. The results are presented in Table 1.

Thus, regression of the main symptoms of COPD – cough, shortness of breath was observed in shorter time in patients with the main group receiving complex therapy, indicating its effectiveness.

In the study of EFR, it was noted that in the patients of the main group receiving the combined drug ambroxol and acetylcysteine and halotherapy in addition to the basic therapy, a significant growth of FEV$_1$ was observed at 8.3% (72.5±1.1)% to (79.1±1.8)% (p<0.05); the growth of the FEV$_1$/FVC % was 7.2% (72.3±1.4)% to (79.6±1.9)% (p<0.05), while in the control group, the growth of FEV$_1$ was noted at 5.5% – from (71.7±1.6)% to (75.7±1.2)% (p<0.05); the of FEV$_1$/FVC o was 4.6% – from (71.2±1.3) to (74.5±1.9) (p<0.05), that is, these indicators only tended to improve. The results are presented in Table 1.

Thus, using in combined therapy for patients with COPD of the combined drug PulmoBRIZ with simultaneous mucolytic and mucorregulatory action and the course of halotherapy, contributes to the significant elimination of broncho-obstruction, as evidenced by a significant (p<0.05) increase in the rates of FEV$_1$. FEV$_1$/FVC after the course of treatment in patients the main group.

Examination the psychological state of patients with COPD, using the questionnaire – Ch.D. Spielberger – Yu.L. Hanin in patients with COPD revealed an increased level of reactive anxiety (RA), Thus, in patients with the main group, the average level of RA before treatment was 46.1 ± 2.12, in the comparative control group it was 45.6 ± 2.8.

RESULTS

Before treatment, all patients noted an increase in cough with purulent sputum, shortness of breath under physical activity, fever to subfebrile digits, general weakness.

In a survey on the scale of mMRC in patients with the main group, the average indicator was 2.6 ± 0.5 points, indicating exacerbation of COPD, whereas after treatment 0.6±0.4 points (p<0.05). In patients in the control group receiving baseline therapy, the average score of the total points before treatment was 2.48±0.7, after treatment 0.9±0.3 (p<0.05).

The total index of CAT in patients of the main group before treatment was 18.3±1.1 points, after treatment – 6.4±0.4 scores (p<0.05), in patients of the control group before treatment – 19.1±1.4 scores, after treatment – 10.1±0.3 (p<0.05). Thus, according to the questionnaire CAT, after the treatment, significant differences (p<0.05) between patients in the main and control groups were noted, indicating the effectiveness of complex therapy of exacerbation of COPD.

In the course of treatment, the evaluation of the regression of the main clinical symptoms was performed in patients with the main and control group. There were significant differences in terms of the disappearance of shortness of breath, cough (p<0.05). The average cough loss in patients with the main group was 4.6±0.32 days, whereas in the control group – 5.9±0.44 days (p<0.05). The average duration of dyspnea disappearance in patients in the main group was 3.3±0.26 days, whereas in patients with control group – 4.7±0.53 (p<0.05). The results obtained are shown in Figure 1.

Thus, regression of the main symptoms of COPD – cough, shortness of breath was observed in shorter time in patients with the main group receiving complex therapy, indicating its effectiveness.

In patients with COPD B, GOLD II, the average score of the total points before treatment was 18.3±1.1 points, after treatment – 2.48±0.7, after treatment 0.9±0.3 (p<0.05). Thus, according to the questionnaire CAT, after the treatment, significant differences (p<0.05) between patients in the main and control groups were noted, indicating the effectiveness of complex therapy of exacerbation of COPD.
control group, the RA level before treatment was 45.6±2.8 after treatment 37.5±3.2 – decreased by 17.7% (p>0.05). There was no significant difference in the rates of personal anxiety after treatment between the groups.

**DISCUSSION**

The high level of RA was manifested by a feeling of psychomotional tension, irritation, dissatisfaction with oneself and the environment. Under psychosomatic disorders, most leading scientists understand the group of disease states that arose on the basis of the interaction of mental and somatic factors manifested somatization of mental disorders, mental disorders that cause a response to a somatic disease, or the development of somatic pathology under the influence of psychogenic factors [11]. Thus, in addition to the etiological and pathogenetic factors affecting the quality of life (LQ) of the patients with COPD, the presence of a concomitant clinically significant syndrome the RA increases the negative effect on all components of LQ of these patients, which coincides with the authors' opinion [10]. The obtained results suggest that reactive anxiety is a very mobile feature and is characterized by reversibility in normalizing the somatic state and social conditions of man [9]. Thus, application in patients with COPD in the complex treatment of the course of halotherapy, does not only effect the bronchodraining, sanogenic, anti-inflammatory effects, but also helps to reduce reactive anxiety, which coincides with the opinion of specialists [6].

The observation dynamics showed that in patients with the main group receiving complex therapy, COPD exacerbations were not observed for 6 months, while in the control group – 4 (16%) patients had a recurrence of the disease. During the study, on the background of therapy with a gentle course of 12 days, no any adverse events from other organs and systems were registered.
CONCLUSIONS
Thus, the complex therapy of patients with COPD, with the inclusion of the combined drug "Pulmobreathe" and the sessions of halotherapy, contributes to the regression of the main clinical manifestations of the disease in a shorter time, significant improvement in the function of external breathing, reducing the level of reactive anxiety and prolonging the duration of remission, all of which improve patients’ lives.

Complex therapy of patients with COPD with the inclusion of a combined drug "Pulmobreathe" and the course of halotherapy characterized by improvement of the course of the disease due to:
- significant reduction of clinical symptoms;
- improvement of bronchial patency rates;
- decrease of the reactive anxiety level;
- no any complications.

Prospects for further research. Study of indicators of ERF, psychological state of quality of life of patients with COPD in more distant periods of observation – in 1 year.

REFERENCES

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Conflicts of interest:
Authors declare no conflict of interest.

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