

## **Efficiency of Different Modes of Therapy for Higher Sinus after COVID-19 in Chronic Obstructive Pulmonary Disease.**

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### **ABSTRACT**

The aim of the research was the introduction of this unique natural remedy in the complex therapy of sinusitis after covid-19 in patients with chronic obstructive pulmonary disease (COPD). The research method was the analysis of the dynamics of the complex therapy, which included infrared radiation therapy against the background of basic therapy. As a result of the treatment procedures, significant positive shifts were determined in the microvessels of the maxillary sinus, which manifested itself in a decrease in the degree of disturbed trophism and clinical symptoms. Conclusion. In patients with COPD, in the dynamics of complex therapy, due to the improvement of vascular microcirculation, the degree of inflammation of the maxillary sinus after covid-19, the indicators of the quality of life also decreased and the function of external respiration significantly increased.

**Key words:** sinusitis, condition after covid-19, chronic obstructive pulmonary disease, resonance therapy, quality of life, vascular microcirculation.

### **INTRODUCTION**

Early diagnosis, adequate prevention and treatment of patients with sinusitis after covid-19 (HPC) with chronic obstructive pulmonary disease requires clarifying the pathogenesis of this pathology, the criteria leading to and worsening its course [2,3]. In patients with COPD with sinusitis after covid-19 (HPA), it is predetermining an unfavorable outcome of the disease and a sharp decrease in the quality of life (QOL) of patients [4]. Among other problems of dentistry, the issues of combined lesions of the maxillary sinus (HS) and internal organs occupy a prominent place, since this kind of pathology is characterized by a mutually aggravating course of diseases due to the presence of a close functional connection between the affected organs. Leading experts [5,6,7] agree that the mechanism of HPA is still completely unclear: when the remodeling of the GE is adaptive and maladaptive. The question of the role of lung ventilation capacity (LVC) and QoL in the progression of HPC requires further study. Combined diseases of the HS and bronchi are of particular interest in this regard. According to some authors, the combination of chronic nonspecific lung diseases and HPA is noted in 17.7-28.0% of cases [4, 6], a connection has been revealed between foci of chronic odontogenic infection and an increased risk of developing chronic obstructive bronchitis and bronchial asthma. The foci of infection in the tissues of the HS also serve as a reservoir for the colonization of respiratory pathogens that cause the development of infectious pneumonia, and the lesion of the HS of an inflammatory-destructive nature can sensitize the body and, thereby, aggravate the course of the chronic process in the bronchi [2,4]. In turn, the chronic process in the bronchi, reducing the general immunological

reactivity of the body, can contribute to the progression of inflammatory diseases of the tissues of the HS. It is suggested that the quantitative and qualitative composition of the microbial landscape of the oral cavity is determined by the reactivity of the organism. In addition, COPD is accompanied by the development of systemic hypoxia, incl. and HS tissues, which, according to a number of researchers, is also a factor aggravating the course of HPA [3].

**Purpose:** analysis of the relationship between pulmonary ventilation capacity disorders, vascular microcirculation and QoL in patients with different severity of COPD with HPA and the effectiveness of various regimens of complex therapy.

## MATERIAL AND METHODS

The present study included 66 patients with a diagnosis of grade II to grade IV COPD in combination with moderate and severe HPA. The average age of the patients was  $59.7 \pm 3.7$  years. The healthy group (ZL) consisted of 30 healthy individuals with the corresponding anthropometric characteristics without signs of cardiorespiratory pathology.

All patients underwent clinical and functional studies before treatment and after 10 complex therapy procedures. The data obtained were processed by the method of variation statistics, the significance of differences was determined by the Student's T test.

Patients, depending on the severity of the disease, are divided into 2 subgroups:

I - subgroup - 32 patients with 1A only with HPA of severe stage. and 1B HPA is heavy. degree in combination with COPD IV Art.

II - the subgroup consisted of 34 patients with IV only with moderate HPA and IH with moderate HPA combined with grade II-III COPD;

depending on the methods of treatment, the RT group included: resonance therapy (resonant therapy with narrow-spectrum IR emitters locally, 2 times a day for 6 minutes against the background of basic therapy (BT).

the BT group included 26 patients - IA, IB subgroup, IIB, III $\Gamma$  who received only traditional basic therapy. His first stage was the appointment of an individual hygienic regime of the oral cavity, which provides for double brushing of teeth after meals (in the morning and in the evening), followed by control over the degree of cleaning teeth from plaque using erythrosine red and individual selection of a toothbrush and paste. Prescribed antibacterial, anti-inflammatory therapy (rinsing the mouth with 0.06% chlorhexidine bigluconate solution, applications with romasulan), applied therapeutic dressings with 36 heparin ointments. In the presence of carious cavities, dental treatment was performed. To obtain objective results, patients of all subgroups were compared in terms of age, sex, duration of the disease, nature and depth of damage to the tissues of the HS. The studies were carried out during the period of relative remission of the lung disease. In addition to general clinical studies, the function of external respiration and blood oxygen saturation were examined in all patients.

Comparative assessment of quality of life indicators between patients with COPD IV + HPA is severe. Art. and COPD II - III Art. + HPA Wednesday Art. revealed that in patients of the 2nd subgroup, the indicators of physical condition (FS), emotional state (ES), professional fitness (PP) and satisfaction with treatment (UL) were reduced, respectively, by  $3.16 \pm 0.07$ ;  $2.97 \pm 0.04$ ;

$3.48 \pm 0.06$  and  $2.85 \pm 0.03$  points ( $p < 0.05$  compared to the CG). At the same time, in patients with COPD IV + HPA is severe. Art. Of the 1st subgroup the analyzed QOL indicators were reduced more significantly: FS by  $2.14 \pm 0.06$ ; ES by  $2.11 \pm 0.05$ ; PP by  $2.56 \pm 0.03$  and UL by  $2.02 \pm 0.05$  points. In patients of the 1st subgroup, QOL deterioration was more pronounced: patients found it difficult to perform their usual professional duties, experienced fear of physical activity and dissatisfaction with treatment. The obtained data reflect that the functional status and quality of life of patients significantly worsened with an increase in the degree of COPD and HPC. The results of the correlation analysis demonstrated a pronounced relationship between the QOL indicators and the processes of remodeling of tissue HG (HST): with pain ( $r = 0.43$ ), with a lesion in the HTS ( $r = -0.35$ ), with Vmax ( $r = 0.32$ ) and with ICR ( $r = 0.34$ ) ( $p < 0.05$ ). In patients with IB and IIG subgroups who received resonance therapy against the background of BT, the dynamics of treatment analyzed a decrease in dyspnea by 4.7 and 6.6%, respectively; an increase in ISL-FEV1 by 6.2% and 12.3%, blood oxygen saturation - SaO<sub>2</sub> by 4.6 and 5.7%, an increase in exercise tolerance by 9.2% and 12.6%, ( $p < 0.05$  - reliability of the difference in relative dynamics).

The inclusion of resonance therapy in the treatment regimen for 10 days in patients with IA and IIB subgroups led to a more significant increase in exercise tolerance (a significant increase in distance with a 6-minute test) and to an improvement in quality of life parameters against the background of improved ventilation parameters. The revealed tendency was less significant in subgroups IB and IID, which indicates more pronounced maladjustment changes in the ventilation-perfusion system in patients with COPD compared with HPC.

When assessing psychoemotional disorders, the initial state of PE indicators was investigated. Psychoemotional analysis of personal anxiety (LT) in patients with IA and IIB subgroups showed that, compared with the control, the affect of reactive anxiety (RT) increased to  $49.8 \pm 0.5$  and  $43.1 \pm 0.71$  versus  $31.6 \pm 1.6$  points. Thus, personal anxiety was  $53.8 \pm 0.5$  and  $48.2 \pm 0.4$  versus  $33.5 \pm 0.6$  points and manifested itself in 22 (10.4%) and 16 (6.5%) patients. apathy, fearfulness and pessimism. In subgroups IB and IIG, RT increased by 38.5 and 31.6% ( $p < 0.05$  - compared with the CG). The reactive state was observed in 32 (13.6%) and 19 (9.4%) patients. And during testing, the intensity of personal anxiety increased by 34.3 and 23.1% ( $p < 0.05$ ). These patients also had an anxiety state with a tendency to perceive a certain range of situations in the form of a threat. During testing, reactive anxiety prevailed over the affect of personal anxiety in subgroups IA and IIB, and a comparative increase in LT was noted in subgroups IB and IIG.

Thus, it can be assumed that psychoemotional adaptation in the form of visceral disorders is the starting point of the mechanism for the development of vasoconstriction, and later, trophic disorders in the tissue of the HS. A comparative assessment determines the fact that with COPD grade IV + HPA is severe. Art. psychoemotional imbalance is more severe than with COPD II-III degree. + HPA Wednesday Art.

At the same time, the processes of HC tissue remodeling, a decrease in the ventilation-perfusion state, progress in parallel to an increase in the severity of the course and length of time of COPD, which affects the quality of life of patients. in patients with subgroup 1A, more pronounced

changes in the disturbance of the GST and the function of external respiration are noted. These indicators were practically compared with the results of the IIB subgroup, which coincides with the data of ATS / ERS, indicating that GST remodeling begins earlier and is more severe in grade IV COPD, in contrast to grade II-III COPD.

This means that with COPD in combination with HPA, a kind of vicious circle develops: on the one hand, the persistent immune imbalance existing in the body contributes to further chronicity of the pathology of HS, aggravating its clinical course, quality of life, PE status of patients and worsening the prognosis, and on the other hand, the progression of pathology ... In this regard, compensatory reactions deplete the metabolic background, adaptation processes, increasing secondary immune deficiency.

Against the background of the existing metabolic disorders, the oxygen deficiency in the tissues of the HS additionally inhibits the regenerative and reparative processes in all its structural components and the mucous membrane. The significance of the combined pathology of HS and bronchi is determined not only by the prevalence and severity of the course of the disease, the negative effect on the body as a whole, but also by the low efficiency of the treatment. In the literature, there are practically no scientifically substantiated data on the possibilities of an integrated approach to systemic methods of treating HS, combined with COPD, which is due to the functional and industrial disunity between dentists and doctors of other specialties [1,5,8].

## CONCLUSIONS

The emergence and development of microcirculation disorders in patients with HPC with COPD are based on adaptive and maladaptive states in the field of psychovegetative regulation factors, which indicates a decrease in VLV and prolonged cerebral hypoxia.

In patients with severe COPD with HP, there is a more pronounced decrease in QOL in FS and UL, and in patients with moderate COPD with HP - in ES and PP ( $p < 0.05$ ), which must be taken into account when carrying out rehabilitation measures. RT treatment against the background of complex therapy helps to eliminate disorders of the psychovegetative state of patients with COPD with HPA, which positively correlates with the state of ISL and microcirculation of blood vessels.

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