

## SECTION VIII. MEDICINE

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### EFFECTS OF N-ACETYLCYSTEIN ON PROTEINAS-INHIBITORY SYSTEM WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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**Aim:** to the improvement of the effectiveness of therapy of chronic obstructive pulmonary disease (COPD). To study effects of N-acetylcystein (NAC) on proteinas-inhibitory system (PIS) with COPD.

NAC can relieve symptoms of respiratory conditions by acting as an antioxidant and expectorant, loosening mucus in your air passageways. As an antioxidant, NAC helps replenish glutathione levels in your lungs and reduces inflammation in your bronchial tubes and lung tissue. People with chronic obstructive pulmonary disease (COPD) experience long-term oxidative damage and inflammation of lung tissue, which causes airways to constrict — leading to shortness of breath and coughing. NAC supplements have been used to improve COPD symptoms, exacerbations and lung decline. Bronchitis occurs when the mucous membranes in your lungs' bronchial passageways become inflamed, swell and shut off airways to your lungs. By thinning mucus in your bronchial tubes and boosting glutathione levels, NAC may help decrease the severity and frequency of wheezing, coughing and respiratory attacks. In addition to relieving COPD and bronchitis, NAC may improve other lung and respiratory tract conditions like cystic fibrosis, asthma and pulmonary fibrosis, as well as symptoms of nasal and sinus congestion due to allergies or infections.

**Materials and methods:** 46 men with COPD were examined (mean age 52,3±2,1 yr, mean duration of the disease 12,1±1,5 yr, mean non-smokers).

The patients were divided into two groups:

1 gr. – 20 patients receiving N- acetylcystein (NAC) 600mg/day along with bronchodilator therapy (tiotropium bromide)

2 gr. – 26 patients receiving only bronchodilator therapy.

The state of PIS was assessed due to activities of tripsin (T),  $\alpha$  1antitripsin (AT) in bronchoalveolar lavage fluid before and after a 30-day course of therapy.

**Results.**

Table 1

**Activity tripsin (T),  $\alpha$  1antitripsin (AT) before and after 30-day course of therapy**

Parameters	T activity before treatment	T activity after treatment	AT activity before treatment	AT activity after treatment
1gr.	2,8 $\pm$ 0,1	0,9 $\pm$ 0,2*	1,7 $\pm$ 0,2	1,0 $\pm$ 0,1*
2gr.	3,0 $\pm$ 0,2	2,6 $\pm$ 0,2	1,8 $\pm$ 0,1	1,6 $\pm$ 0,2

\* $p < 0,05$  (after treatment)

**Conclusion** - high therapeutic efficacy of NAC and positive effects on PIS in patients were registered. NAC's antioxidant and expectorant capacity can improve lung function by decreasing inflammation as well as breaking up mucus.

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**MORPHOLOGICAL CHANGES IN ORGANS IN RATS OF EXPERIMENTAL DIABETES MELLITUS TYPE 2**

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Diabetes mellitus (DM) is one of the most common diseases with a steady upward trend. According to the statistic evidence of the World Health Organization (WHO) the number of diabetics in the world in 2019 is as high as 463 million [1]. The real incidence is much higher, because most of cases of DM type 2 are undiagnosed. Today, one of the main problems in medicine is deviation of carbohydrate metabolism, which is indirectly provoked by uncontrolled digestion of sugar and sweets. Modern rhythm and lifestyle make it practically impossible to radically restrict the consumption of easily digestible carbohydrates, which further increases the risk of developing DM type 2. Nowadays diabetes is a medical and social problem and a heavy burden to health and society as a whole: 80% of all testing and treatment costs make patients with complications [2]. According to previous studies, this pathology leads to morphological changes, usually in the pancreas, liver, myocardium, kidneys and small intestine. Considering the option of performing an aiming puncture biopsy that is in the arsenal of a modern physician we state it is necessary to investigate the gradual morphological changes in the target organs for timely diagnosis of type 2 diabetes and to conduct appropriate therapy to reduce the damaging effects of hyperglycemia.