Assessment of the severity of chronic obstructive pulmonary disease using vegetative resonance test

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Chronic obstructive pulmonary disease (COPD) remains one of the main problems of pulmonology (A.G. Chuchalin et al., 2004; E.I.Shmelev, 2005; JM Anto, 2001; G. Viegi, 2006). Its relevance is due to its high proportion in the structure of general morbidity, disability and mortality (A.N. Kokosov, 2000; KR Chapman et al., 2006). According to WHO forecasts, by 2020, mortality from COPD will rank 5th among all causes of death.

Unfortunately, the gold standard for COPD diagnostics - spirography and piclowmetry - do not always reflect a reliable picture of the disease, which makes it difficult to prescribe treatment.

A number of researchers (Kvanier F., 1993; Dvoretsky L.I., 2001, I.V. Leshchenko, 2005) explain this by the fact that the indicators of these methods depend on the volitional effort developed by the patient during forced exhalation, which can be reduced by independent conditions of the respiratory tract for reasons, especially in critically ill patients.

In this regard, in recent years, there has been a search for alternative methods for assessing the severity of COPD. Considering the increased interest of practicing doctors in the methods of traditional medicine and the increase in the number of specialists working in this field, there is a need to unify diagnostic methods, the results of which would be understandable both for doctors of traditional therapy (in particular, bioresonance) and other clinicians, which would make it possible to find more points of contact in working for the benefit of the patient. Indeed, despite a sufficient number of works devoted to the theory and practice of electropuncture diagnostics, its use in the clinic of internal diseases remains limited. Analysis of the literature on the use of EP ART in pulmonology showed that the overwhelming majority of studies were carried out with the aim of diagnosing and treating bronchial asthma,

In this regard the purpose of our research - development of an electropunctural model diagnosis of COPD. To achieve this goal, the method of electro-acupuncture vegetative resonance test (EP VRT) was used. The research is carried out on the hardware and software complex "IMEDIS-EXPERT" of the Center "IMEDIS".

To solve the set tasks, 89 people were examined. All examined were divided into 2 groups.

The main group consisted of 68 people who are inpatient treatment in the therapeutic department of the Department Hospital of Art. Vladivostok, JSC Russian Railways and in the pulmonary department of the city clinical hospital No. 63 in Moscow, among which two subgroups were identified. Subgroup I of the main group "Patients with COPD" included 57 patients with an established diagnosis of COPD, hospitalized during the exacerbation period for examination and treatment. The duration of the disease ranged from 3 to 24 years, in the structure of the group there were 40 men and 17 women aged 36 to 74 years, the average age was 59.7 ± 0.8. Subgroup II of the main group "Healthy smokers" included 11 people without clinical and functional signs of bronchial obstruction at the age from 36 to 41 years old, who abuse smoking, the average age was 37.9 ± 0.6.

The control group consisted of 21 healthy volunteers aged 36 to 41 years, non-smokers, without allergic diseases, chronic processes in the nasopharynx, bronchopulmonary and cardiovascular systems, without radiological changes in the chest organs.

For the diagnosis of COPD, the International Classification of Diseases X revision (ICD-10), prepared by WHO (Geneva 1992), definitions of the All-Russian Research Institute was used

pulmonology epidemiological criteria of the WHO, data of the International Consensus and the Federal Program for the Diagnosis and Treatment of COPD, 1999. According to international recommendations, the stages of COPD were assessed depending on the level of volume reduction forced exit in 1 second (FEV_{one}). Stage I COPD (mild) - $FEV_{1>}$ 70% of the proper values were established in 22 patients; Stage II (middle) - 50-69% FEV_{one} - in 30 patients; Stage III (severe) - <50% FEV_{one} - in 5 patients with COPD (table 1).

Table 1

Genotypic and nosological characteristics of the group

Main group (n = 57)					Control group (n = 21)	
Degrees gravity COPD	I subgroup (n = 31)		II subgroup (n = 11)		Husband.	Female
	Husband.	Female	Husband.	Female	12	nine
0 tbsp.			7	4		
1 tbsp.	eleven	10	-	-		
2 tbsp.	sixteen	fourteen	-	-		
3 tbsp.	4	one	-	-		
4 tbsp.	-	-	-	-		

The duration of the disease in the main group varied greatly from 3 to 24 years. Most of the patients - 26 people (45%) suffered from COPD from 10 to 15 years, in second place is the duration of the disease from 5 to 10 years in 18 people (31%).

Among the reasons that caused an exacerbation of the disease in the main group, 51% of patients (29 people) had acute respiratory viral infections, 28% (16 people) had hypothermia, 21% (12 people) could not name a specific reason.

In the factors of COPD, which have a negative effect on the state of the mucous membrane of the respiratory tract, the surfactant system, local protection factors in most patients (subgroup I of the main group, smoking was noted - 52 smokers (91.2%). In addition, in 34 patients with COPD (59.6%) had occupational hazards, such as dustiness, gas contamination of working premises, constant temperature drops.

7.8% of cases) occupational hazards led to the development of COPD

All patients were examined in the phase of exacerbation of COPD, as evidenced by the presence of clinical and laboratory signs of exacerbation. For the study, standard research methods were used: questioning, physical examination, the results of a general blood test, a chest x-ray were evaluated. Determination of laboratory parameters was carried out according to the standard method.

During the questionnaire survey, the main complaints were dry or slightly cough the amount of difficult sputum; shortness of breath; with moderate physical activity; weakness; increased body temperature, sweating.

With an objective study, more often listened to dry scattered rales of various sizes against a background of weakened vesicular breathing - with auscultation; the change in the percussion sound was determined in the form of a box shade - with percussion.

The general blood test in the main group predictably, taking into account the phase of exacerbation of the process, showed an inflammatory reaction of the blood: accelerated ESR, leukocytosis, stab shift to the left. To simplify the analysis of the data obtained, we used the coefficient of diagnostic significance (Kj), with the help of which we identified the clinical and laboratory symptoms that are diagnostically significant for the period of exacerbation of chronic obstructive bronchitis - these are dry cough, wet cough, shortness of breath, weakness, fatigue, sweating, temperature, changes in percussion sound, tachypnoe,

tachycardia, leukocytosis, accelerated ESR (table 2).

table 2

Frequency of individual clinical and laboratory symptoms in patients with COPD

Symptoms	COPD patients	
	Abs. Number	%
Dry cough	28	49.2
Moist cough	46	80.9
Dyspnea	53	93.6
Weakness	55	96.8
Sweating	48	84.1
Percussion change sound	33	58.7
Wheezing	thirty	52.4
Tachycardia	43	76.2
Tachypnea	54	95.2
Leukocytosis	52	90.5
Accelerated ESR	37	65.1

Thus, in the first subgroup of the main group, complaints of dry cough (49.2%) or with a small amount of difficult sputum (80.9%), dyspnea (93.6%) of varying severity, weakness (96.8%) prevailed. , sweating (84.1%).

Objective examination revealed tachypnea (95.2%), tachycardia (76.2%). During auscultation, dry scattered rales of various sizes were more often heard against the background of weakened breathing with prolonged expiration. In 33 people (58.7%), a change in the percussion sound in the form of a box shade was determined.

A significant change in laboratory parameters was observed in patients with COPD. Diagnostically significant laboratory parameters in this group were leukocytosis in 90.5% of cases, accelerated ESR - 65.3%.

Computer flowmetry was performed in order to identify violations of FVD in all subgroups of subjects: healthy, "healthy" smokers, patients with COPD. The study of FVD was carried out in the morning on an empty stomach, on a spiroanalyzer "Spirosift-500" from Fucuda (Japan) and Spirotest (Russia), with the construction of a "flow-volume loop" graph and an assessment of volumetric and velocity parameters. The indicators were assessed according to the system of due values (RF Clement, 1987).

The results obtained were subjected to static processing on a personal computer using the Statistica 6.0 program (Soft. Inc., 2001).

To solve the set task: identification of significant tests of ART EP, we carried out a correlation analysis of the indicators of ART EP with the data of objective examination methods and spirography. The most important thing for our study was the comparison of EP ART and spirography, the gold standard in the diagnosis of COPD. In subgroup I of the main group (patients with COPD), a significant relationship was recorded between FEV1 and OBI ($r = 0.37$; $p = 0.0023$) and RA ($r = 0.46$; $p = 0.036$). The MOS 50 indicator significantly correlated with the organ preparation of the bronchi ($r = -0.38$; $p = 0.034$) and lungs ($r = 0.34$; $p = 0.0037$). Thus, the speed indices of spirography correlated with the integrative indices of the ERT EP: OBI and RA, as well as with the indices of organ preparations of the bronchi and lungs. Volumetric spirography showed a stable relationship with the BI of the bronchi and lungs - V50 ($r = 0.40$; $p = 0.0023$) and ($r = -0.46$, $p = 0.007$), respectively. The lung BI test was especially informative in this group of subjects. It correlated with such indicators of spirography as ERV ($r = -0.46$; $p = 0.007$), FEV / VC ($r = -0.46$; $p = 0.007$), MMF ($r = -0.62$; $p = 0,0008$) and bronchial organopreparation. A factorial analysis of the data of the ART EP was carried out using the method of isolating the main components. After rotation of the factors in space, the varimax method was used to select variables (ART tests) with loads of 0.7 or more. This stage made it possible to identify latent

factors that have the greatest impact on COPD, assess the contribution of each factor separately. In addition, it was possible to determine the internal structure of each factor and its main components - predictors. Ultimately, the minimum test set of ART indicators required for diagnosis was determined.
functions of external respiration, and a parallel was drawn with the data of spirography to determine the severity of the disease (Federal COPD Program [9]) (Table 3).

Table 3

Changes in spirography and ART EP indicators depending on the severity of COPD

Stage	Indicators spirography	Indicators EP VRT
0. Increased risk	Not changed	- Bronchi D10-D12, Lungs D6; - Inflammation is not detected; - BIL <9, BIBr 9-13
I. Light	- FEV_{one}/FVC <70%; - FEV_{one} 80% off due values	- Bronchi D4-D5, Lungs D10-D12; - Inflammation of xp1; - BIL <9, BIBr 9-13
II. Medium-heavy	- FEV_{one}/FVC <70%; - 50% FEV_1 < 80% of the due values	- Bronchi D3-D4, Lungs D10-D12; - Inflammation of xp1, inflammation of xp2; - BIL 9-13, BIBr 13-18, 2 and more BI
III. Heavy	- FEV_{one}/FVC <70%; - 30% FEV_1 < 50% of the due values	- Bronchi D3-D4, Lungs D3, D12-D15; - Chr2 inflammation, fibrosis; - BIL 13-18, BIBr 13-21, 2 and more BI
IV. Extremely heavy	- FEV_{one}/FVC <70%; - FEV_1 < 50% of the required values in in conjunction with chronic respiratory failure accuracy or right ventricular insufficiency	Not examined

Determination of the severity of the disease by the EP ART method seems to be less laborious for the doctor and patient, does not require effort on the part of the patient, can be used at the patient's bedside, takes little time. In this regard, the use of EP ART as an alternative to spirography, as well as as a control of the effectiveness of the therapy, seems to us justified.

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