Assessment of the severity of chronic obstructive pulmonary disease according to EP ART tests

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In the previous collection of abstracts (2008), the Laboratory of Clinical and Experimental Homeopathy of the FNECC TMDL and the IMEDIS Center published preliminary results of a study of pulmonary patients at City Clinical Hospital No. 63 in Moscow [3]. Over a year of work, with an increase in the number of patients, the results of the study have changed somewhat, and this publication provides its final results.

Purpose of work: to assess the possibilities of EP ART in diagnosing the severity of chronic obstructive pulmonary disease (COPD). Often, we, doctors working with traditional diagnostics, have difficulties in communicating with colleagues from academic medicine due to the inability to interpret the results of our diagnostics, and the patient suffers because of this. He has to choose between "this" medicine and "that". We consider this to be incorrect and see it as our task to integrate ART into the academic diagnosis of COPD. The equipment of the company "IMEDIS" allows us to do this. The main thing is to correctly interpret the results obtained; this is what our study is devoted to. We present a new comparative analysis of the results of spirography and EP ART in patients with COPD of varying severity.

A total of 147 patients with COPD of varying severity in the exacerbation phase undergoing inpatient treatment were studied. The control group consisted of 21 healthy volunteers aged 36 to 41 years, non-smokers, without allergic diseases, without a history of risk factors for COPD, chronic processes in the nasopharynx, bronchopulmonary and cardiovascular systems, without X-ray changes in the chest organs.

For the diagnosis of COPD, the International Classification of Diseases X revision (ICD-10), definitions of the All-Russian Research Institute of Pulmonology, WHO epidemiological criteria, data of the International Consensus and the Federal Program for the Diagnosis and Treatment of COPD, 2004, 2007 [4, 5] were used. According to international recommendations, the stages of COPD were assessed depending on the degree decrease in the volume of forced output in 1 second (FEV_{one}). Stage I COPD (mild) - FEV_1> 70% of the proper values were established in 33 patients; Stage II (middle) - 50-69% FEV_{one} - in 54 patients; III stage (severe) - <50% FEV_{one} - in 60 patients with COPD. By gender, among the examined patients were dominated by men - 94 people (63.9%), women were 53 (35.9%). Average age patients with COPD was 54.19 ± 1.85. Among the surveyed, representatives of physical labor were more common than employees - 91 (61.9%) and 56 (38.1%), respectively.

During the study, we used general clinical, functional, X-ray, bronchological and laboratory methods.

The function of external respiration was studied using a Spirotest computer-assisted Spirotest (Russia), with the registration of lung volumes: VC (VC) - vital capacity of the lungs, FVC - forced vital capacity, FEV1 (FVC1.0) - forced exhalation in the first second; velocity indicators: POS (PEFR) - peak expiratory flow rate, MOS25 (FEF25%), MOS50 (FEF50%), MOS75 (FEF75%) - maximum volumetric flow rates of the curve at points corresponding to 25%, 50%, 75% FVC; relative indicator: the ratio of the forced expiratory volume in the first second to the vital capacity of the lungs (FEV1 / VC) - Tiffno's index.

EPVRT was performed on the IMEDIS apparatus (Russia) with computer processing of the results in the IMEDIS-EXPERT program [2].

Statistical analysis of the research results was carried out in the computer program Statistica 6.0 based on standard methods of variation statistics [1].

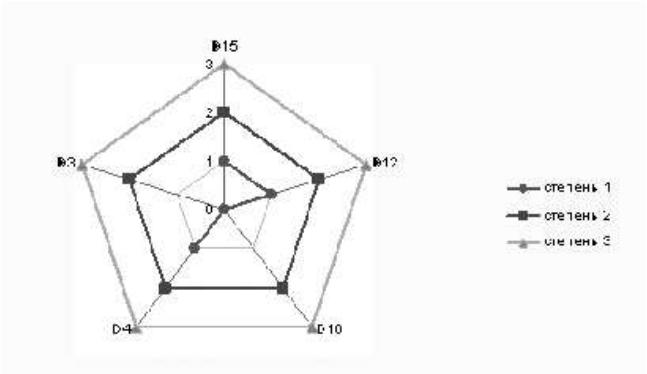
Statistical processing of the results of the study of 3 groups of patients, based on the severity of COPD, revealed a spirography indicator, which correlated with the majority of ART EP indicators - this is the forced expiratory volume (FEV1) [3]. FEV1 is the main indicator by which the severity of the disease is judged. Moreover, in the spirography recording, it is the most difficult maneuver to perform. According to our data, 22 (14.9%) patients were unable to perform the forced expiratory maneuver due to various reasons (the severity of the condition, old age, psychologically cannot take the mouthpiece in the mouth, etc.). According to the latest results, the following comparative table of the data of EP VRT and FEV1 tests was obtained (Table 1).

Table 1

Compliance with FEV1 and EP ART tests

Stage	Spirography indicators	Indicators of EP ART
I. Light	FEV_{one}/FVC <70% FEV_{one} ≥ 80% of proper values	Bronchi D12 Lungs D6 Chr1 inflammation BIL <9, BIBr 9-13 Bronchi
II. Medium	FEV_{one}/FVC <70% 50% ≤ FEV_1 < 80% of the due values	D3, D10 or D12 Lungs D12 Chr1 and / or chr2 inflammation BIL 9-13 BIBR 13-18 (2 or more BI) Bronchi
III. Heavy	FEV_{one}/FVC <70% 30% ≤ FEV_1 < 50% of the due values	D3 and others (more than 3) Lungs D3 and others (more than 3) Inflammation of chr2 fibrosis BIL 13-18 (more than 3) BIbr 13-21 (more than 3)

In the course of the work, it turned out to be the most difficult to find patterns between the potencies of organopreparations of the lungs and bronchi and to identify those that will occur in a patient with a certain stage of the disease (based on spirography data, physical data). To date, it is not possible to say that a patient with stage 1 of COPD has organopreparations in one potency, and in a patient with stage 2 - in another, it is not possible (no statistical reliability has been obtained) (Fig. one). But it was noticed that with an increase in the severity of the process, the number of positive tests (in terms of potency) of organopreparations of the bronchi and lungs increases. We regard this as an indicator of the deterioration of the morphology of the lung tissue as the disease progresses. Tests of the biological indices of the lungs and bronchi, as well as the morphological scales of L.B. Makhonkina confirm this assumption. There is a clear relationship between the increase in the number of indices from grade 1 to grade 3, as well as the number of positive tests of morphological scales.



Rice. one.Potencies of organopreparations depending on the severity of COPD (for example, organopreparations of the bronchi)

As can be seen from the figure, not all potencies of organopreparations are specific for each severity of COPD. It was possible to reliably establish that with a mild degree of COPD, the potency of D10 and D3 is not typical for organopreparations of the bronchi. Differences in potency of organopreparations of the bronchi for moderate and severe degrees of COPD have not been established, which once again emphasizes the conventionality of such a division, as well as an increase in the polymorphism of cellular elements with the development of the disease. That is, the determination of any potency by itself, unfortunately, does not allow distinguishing between moderate and severe COPD on the basis of an organ preparation of the bronchi. But nevertheless, it was possible to establish some reliable patterns. Thus, it was revealed that D15 occurs at all severity of the disease, we regard its presence as an indicator of the severity of the process, because there is an inverse relationship between the day of hospitalization and the frequency of occurrence. On the 12th day of hospitalization, the D15 potency does not occur. D4 potency is nonspecific, reflects minimal organ abnormalities, and occurs in all patients with COPD. Thus, we believe that in order to assess the severity of the process, it is necessary to evaluate the totality of tests. With a moderate course, no more than 3 tests are determined in 47 patients (87%), with a severe course - in 56 patients (93%) - 3 or more tests of organopreparations of the bronchi. Similar tendencies are characteristic for the potencies of the organopreparation of the lungs and are reflected in table. one. we believe that to assess the severity of the process, you need to evaluate the totality of tests. With a moderate course, no more than 3 tests are determined in 47 patients (87%), with a severe course - in 56 patients (93%) - 3 or more tests of organopreparations of the bronchi. Similar tendencies are characteristic for the potencies of the organopreparation of the lungs and are reflected in table. one. we believe that to assess the severity of the process, you need to evaluate the totality of tests. With a moderate course, no more than 3 tests are determined in 47 patients (87%), with a severe course - in 56 patients (93%) - 3 or more tests of organopreparations of the bronchi. Similar tendencies are characteristic for the potencies of the organopreparation of the lungs and are reflected in table. one.

Conclusions:

1. A table of correspondence between FEV1 and EP ART test-preparations was obtained.

2. The main test-preparations of EP ART are organopreparations of the bronchi and lungs, morphological tests of the lungs and bronchi.

3. The severity of COPD EP ART can be determined on the basis of a certain amount positive EP ART tests.

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