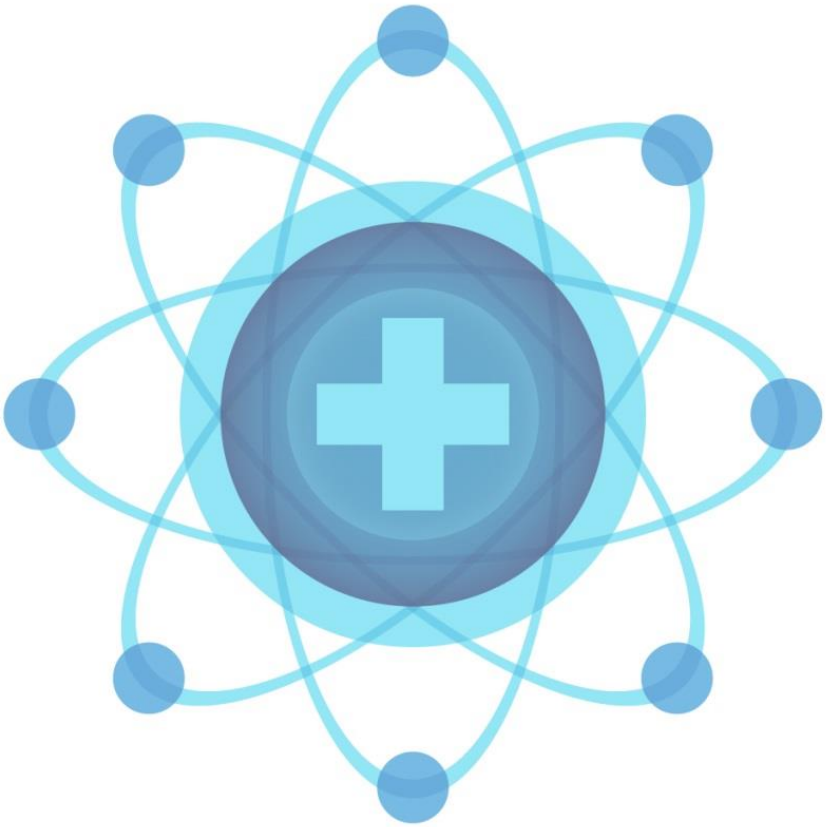

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Expert assessment of survival prognosis and optimization of approaches to early examination of patients with chronic obstructive pulmonary disease.

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Abstract. The results of the analysis showed that among the cohort of patients with COPD with a BODE index of more than 5 and according to the results of the CAT test, which determines a serious impact on the daily life of patients (more than 30 points), the proportion of disabling conditions is high: pulmonary hypertension (62.6% and 42, 2%, respectively), cor pulmonale (37.4% and 21.9%, respectively), confirming the need for primary examination of this category of patients, where it is expected for the first time to establish disability in every 3-4 patients from this cohort of patients.
Keywords. BODE, COPD, FEV1, BMI.

Introduction. Questions of expert early examination of patients with COPD in the category of vital activity: the ability to self-service, movement, work activity and the establishment of their limitations in terms of severity has an important aspect for predicting the progression of the disease, determining the early terms of social rehabilitation measures.

The steadily progressive course of COPD leads to the development of early disability and a decrease in life expectancy. Severe concomitant diseases in COPD, advanced age of patients, progressive emphysema, the development of respiratory and heart failure are unfavorable prognostic signs [2; p. 1-36]. Further evolution is a progressive restriction of air flow, increased pressure in the pulmonary artery, the development of hypertrophy of the right ventricle and cor pulmonale [4; c.1-6]. With the progression of obstruction, patients become less and less mobile, this leads to muscle and cardiovascular disorders, and an increase in disability. The growth of disability contributes to depression, social isolation, which is widespread among seriously ill COPD [3]. In advanced stages of COPD, severe pulmonary hypertension is a serious complication, which predicts an increased frequency of exacerbations.

Disability in COPD is established late and is established almost immediately - the second group. The life expectancy of disabled people with COPD is no more than 6 years on average, which is 3.5 times less than in BA [1; c. 221-232].

The aim of this study was to conduct an expert assessment of the prognosis of survival and optimization of approaches to early examination of patients with chronic obstructive pulmonary disease**..**

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Material and research methods. A total of 340 patients with COPD were examined. Clinical and functional data of patients with COPD were assessed, including the main parameters - BMI (body mass index), MRC (dyspnea scale of the Medical Research Council), FEV1 (forced expiratory volume in the first second), 6-MST (six-minute step test), which determine prognostic outcomes the survival rate of patients with COPD and indicators of the effect of the disease according to the CAT test (the effect of COPD on the patient's daily life and health).

Research results. Assessment of the clinical and functional data of patients with COPD, including the main parameters - BMI, MRC, FEV1, 6-MST, which determine the prognostic survival outcomes of patients with COPD and indicators of the effect of the disease according to the CAT test are presented in Table 1.

Table 1.

Characteristics of clinical and functional parameters in patients with COPD (n = 340)

Factors	n	COPD	Functional degree of COPD			
			I stage, n=25	II stage, n=56	III stage, n=100	IV stage, n=159
BMI, kg / m ^{2}	340	23,5±2,5	24,3±1,2	22,1±2,6	20,8±1,9	18,1±2,4
MRC, points	340	3,1±1,1	0,9±0,3	1,9±0,3	2,6±0,5	3,5±0,4*
$FEV_{1,}$% from due	340	48,4±2,1	81,4±1,1	63,8±3,1*	43,8±2,4*	33,8±1,4*
6- MShT, m	340	171,9±11,2	301,9±19,5	241,9±11,5	151,9±10,2*	125,8±13,8*
CAT test, points	340	30,5±5,5	9,3±1,2	16,1±3,6	29,8±2,5*	35,1±1,4*

From the presented table it can be seen that with the severity of the functional stage, the severity of the clinical manifestations of the disease increases, in particular, the intensity of shortness of breath from 0.9 ± 0.3 to 3.5 ± 0.4 points, the 6-MST indices decrease by 58.3% and manifestations of nutritional deficiency are increasing, accompanied by a decrease in BMI by 25.5%, and the degree of influence of the disease on the patient's life increases by 4 times from a level of insignificant influence (9.3 ± 1.2 points) to a serious (35.1 ± 1, 4 points).

Analysis of clinical and functional parameters with the calculation of the BODE index in patients with COPD showed that 25% of patients with COPD had a calculated BODE index, which determines the 80% probability of 4-year survival (in a grading of 0-2 points); 30% of patients with COPD had a 67% probability of 4-year survival with a calculated BODE index of 3-4 points; in 27.6% of patients with COPD - 57% probability of 4-year survival with the calculated data of the BODE

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index of 5-6 points; 17.4% of patients with COPD had a probability of 18% 4-year survival according to the BODE index from 7 to 10 points.

The assessment of the disease outcome by the BODE index was compared with the indicators of the CAT result, which determines the impact of COPD on the patient's daily life and health (Table 2).

Table 2

Comparison of the results of estimates of the BODE index and CAT

Points total by BODE index, score	N	Impact of COPD on the patient's daily life and health, score			
		Minor 0-10	Moderate 11-20	Expressed 21-30	Serious 31-40
0-2	85	25(29,4±4,9)	56(65,9±5,1)	4(4,7±2,3)	-
3-4	102	1(1,0±1,0)	1(1,0±1,0)	74(72,5±4,4)	26(25,5±4,3)
5-6	94	-	1(1,1±1,1)	20(21,3±4,2)	73(77,7±4,3)
7-10	59	-	-	2(3,4±2,4)	57(96,6±2,3)

According to the results of the study, a high correlation was established between the BODE index and the results of CAT (r = 0.83). It was noted that with a decrease in the percentage of 4-year survival, there is a tendency for the aggravation of the serious impact of COPD on the daily life and health of the patient from 25.5% to 96.6%.

The results of the study compared the clinical and functional parameters that determine the clinical status of the severity of COPD disease, which had a previously established group of disability for respiratory diseases (Table 3).

Table 3

Frequency of scoring criteria in patients with COPD with and without disabilities

Indicator by indicators		Score in points	COPD patients	
			with an established invalidity, n = 82	without established disability, n = 258
BMI, kg / m^2	More than 21	0	29(35,4±5,3)	249(95,6±1,3)
	Less than 21	1	53(64,6±5,3)*	9(4,4±1,3)
FEV$_1$	Over 65	0	1(1,2±1,2)	114(44,2±3,1)

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	50-64	1	11(13,4±3,8)	86(33,3±2,9)
	36-49	2	25(30,5±5,1)*	38(14,7±2,2)
	Less than 35	3	45(54,8±5,5)*	20(7,7±1,6)
6-MShT, m	More than 350	0	-	110(42,6±3,1)
	250-349	1	9(11,0±3,4)	90(34,9±3,0)
	150-249	2	29(35,4±5,3)*	31(12,0±2,0)
	Less than 149	3	44(53,6±5,5)*	27(10,5±1,9)
MRC, shortness of breath	0-1	0	1(1,2±1,2)	116(45,0±3,1)
	2	1	4(4,9±2,4)	80(31,0±2,9)
	3	2	22(26,8±4,9)*	38(14,7±2,2)
	4	3	55(67,1±5,2)*	24(9,3±1,8)

Note: * reliability of the difference between the indicator values ($p < 0.05$).

As can be seen from the presented table, the assessment of individual functional parameters cannot accurately reflect the degree of functional disorders and objectively serve as a criterion for assessing the ability to work. So, up to 14.6% of disabled people had FEV1 parameters of more than 50% of the required value, up to 11.0% - had the result of 6 MST more than 250 m (more than 75% of the required value) and 6.1% of patients had an assessment of the degree of cough by MRC not more than 3 points. Also, COPD patients without established disability had certain disorders that determine the possible degree of disability, which were characterized by a pronounced degree of functional impairment by a decrease in FEV1 of less than 50% of what should be and the results of 6 MST less than 250 m and were 45.0% in the cohort of COPD patients without disability. ...

The evaluated functional criteria, allowing to accentuate the degree of the functional class of the disease, were ranked according to the sum of points, where 0-3 points - functional class I; 4-6 points - functional class II, 7-10 points - functional class III, and analyzed by the frequency of their occurrence in cohorts of COPD patients with and without disabilities (Fig. 1).

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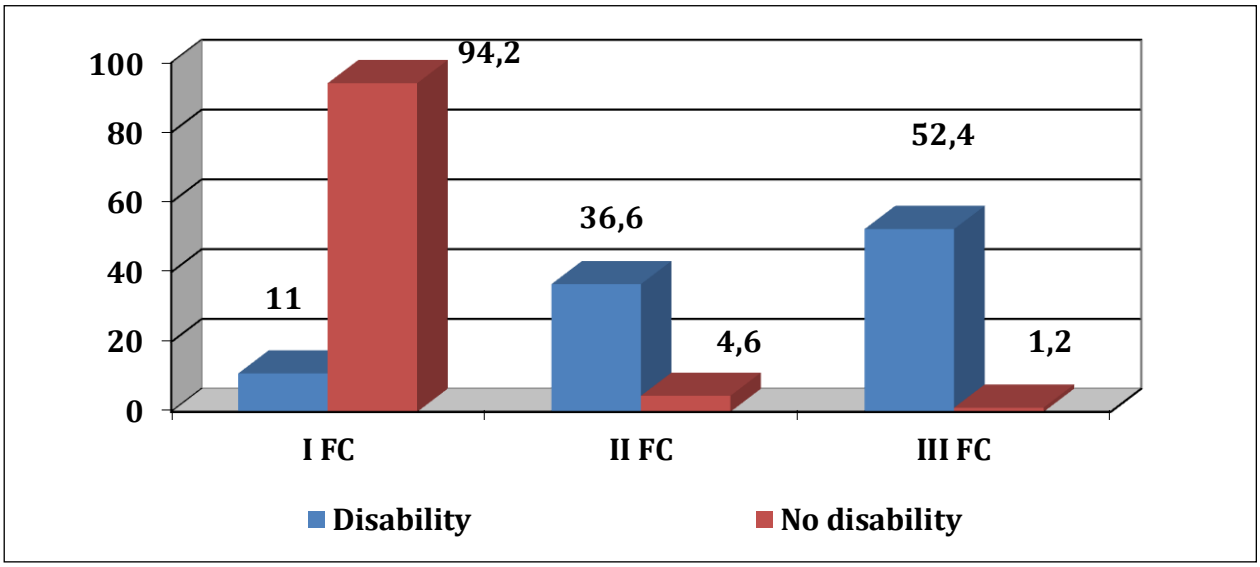

Fig. 1. Frequency of occurrence of functional classes of the disease in COPD

In the cohort of COPD patients with disabilities, there was a trend towards an increase in the functional class of COPD disease from 11.0% to 52.4%.

Assessment of the integral BODE index in COPD patients with an established disability group shows that only 24.4% have a 4-year survival rate of more than 57% (Table 4). From the presented table it can be seen that 90% of patients with COPD, with an existing III disability group, had an 80% probability of 4-year survival; 46.1% of patients with COPD in group II and 71.4% of patients with COPD in group I had an 18% probability of 4-year survival.

Table 4

Percentage rate of 4-year survival in COPD patients with various disabilities

Disability group		4-year survival rate			
		80%	67%	57%	18%
III	10	9(90,0±10,0)	1(10,0±10,0)	-	-
II	65	1(1,5±1,5)	9(13,8±4,3)	25(38,5±6,0)	30(46,2±6,2)
I	7	-	-	2(28,6±18,4)	5(71,4±18,4)
	82	10(12,2±3,6)	10(12,2±3,6)	27(32,9±5,2)	35(42,7±5,5)

Assessment of the impact of the disease on the daily life of COPD patients with an established disability group shows that only 26.8% have a slight or moderate impact on the patient's life according to the results of the CAT test (Table 5).

Table 5

Assessment of the impact of COPD on the daily life and health of a COPD patient with disabilities

Disability		Impact of COPD on the patient's daily life and health, score

group	N	Minor 0-10	Moderate 11-20	Expressed 21-30	Serious 31-40
III	10	6(60,0±16,3)	3(30,0±15,1)	1(10,0±10,0)	-
II	65	1(1,5±1,5)	12(18,5±4,8)	30(46,1±6,2)	22(33,8±5,9)
I	7	-	-	1(14,3±14,3)	6(85,7±14,3)
Total	82	7(8,5±1,5)	15(18,3±4,3)	32(39,0±5,4)	28(34,1±5,2)

The used assessment of expert examination of patients with COPD is based on parameters reflecting the severity of obstruction and hemodynamic disorders, taking into account the nature of the patient's work activity and concomitant pathology, today, without taking into account and assessing the integral indicators of the BODE index, which determine the probability of the percentage of 4-year survival and outcomes CATs assessing the impact of COPD on a patient's daily life may not reflect a valid level of expert judgment.

Analysis of the occurrence of functional and hemodynamic criteria that determine the assessment of expert examination of patients with COPD in a cohort of individuals with a 57% probability of 4-year survival and the level of serious impact of COPD on the patient's daily life is presented in Table 6..

Table 6

Frequency of occurrence of functional and hemodynamic criteria that determine the assessment of expert examination of patients with COPD

COPD patients with indicator values	n	Functional and hemodynamic parameters					
		SDLA more than 25 mm Hg	Sodi Poll Rice Index less than 10	PII-III more than 2	for physical activity		
					the rise		decline
					Heart rate over 15%	NP more than 20%	saturation by more than 3%
CAT more than 30 points	128	54 42,2±4,4	31 24,2±3,8	28 21,9±3,5	36 28,1±3,6	40 31,2±4,1	26 20,3±3,5
BODE Index 5 and more	91	57 62,6±5,1	32 35,2±5,0	34 37,4±5,1	30 33,0±4,9	42 46,1±5,2	33 36,3±5,1

The results of the analysis showed that among the cohort of patients with COPD with a BODE index of more than 5 and according to the results of the CAT test, which determines a serious impact on the daily life of patients (more than 30 points), there is a high proportion of disabling conditions: pulmonary hypertension (62.6% and 42, 2%, respectively), cor pulmonale (37.4% and 21.9%, respectively), confirming the need for

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primary examination of this category of patients, where it is expected for the first time to establish disability in every 3-4 patients from this cohort of patients.

Conclusions:

1. The high diagnostic significance of the integral estimates of the BODE index and the results of the CAT test in the issues of early examination of patients with COPD was stated.
2. These integral indices have a high correlation with clinical and functional indicators that determine the severity of the disease and its functional classes, and their close correlation with the disability group has been established, which determine persistent disability..

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