

**A COMPARATIVE ANALYSIS OF EFFECTIVENESS OF OXYGEN THERAPY IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND IDIOPATHIC INTERSTITIAL PNEUMONIA**

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**SUMMARY**

We have studied an influence of an oxygen therapy on blood gases indices in 13 patients with chronic obstructive pulmonary disease (COPD) and 17 patients with idiopathic interstitial pneumonia (IIP) with severe hypoxemia. We have concluded that both groups of patients with COPD and IPP with similar grade of hypoxemia differed significantly by the grade and the mechanisms of lung diffusion (DL) disturbances. In IIP patients there were extremely prominent disturbances of DL, caused by thickening of alveolar-capillary membrane. In COPD patients we observed moderate disturbances of DL, which were caused by a difference of oxygen partial pressure in alveoli and capillaries due to hyperinflation of lungs. Standard oxygen flow rate (3 l/min), used in treatment of COPD patients, was not effective in patients with IIP. The choice of oxygen therapy flow rate for these patients lies within 3-5 l/min, depending on blood oxygen saturation index response.

13 ( ) 17 (DL): DL, (3 / ) 3 5 / : , « » [5]. [8, ] 10, 12]. ( ) [6, 7, 11]. 2011

».

(FVC, %), (FEV<sub>1</sub>, %), FEV<sub>1</sub>/FVC (%).

(VC, %), (RV, %), RV/TLC (%), (DL), (DLCO, %), DLCO VA %).

New Life Elite 5LPM, «AirSep».

(-5, -12; -42 71) (13) (48 73) 15- 30-

2 ≤ 59 2 ≤ 55 (t) [2].

> 55 %).

11 1

, 6 -

III , 8-IV DL [3,4].

1

ABL5 (Radiometer). DLCO

(2' . .) (2' . .)

2

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(M ± m)

	(n = 13)	(n = 17)	t
PaO <sub>2</sub> ( . .)	51,7 ± 1,7	50,9 ± 1,9	0,31
PaCO <sub>2</sub> ( . .)	46,1 ± 1,9	44,2 ± 2,1	0,67
DLCO ( % .)	48,1 ± 7,2	27,3 ± 2,8	2,69*
KCO ( % .)	71,7 ± 12,0	60,2 ± 5,5	0,87
TLC ( % .)	108,1 ± 6,1	50,2 ± 4,2	7,82*
VC ( % .)	70,4 ± 5,8	53,1 ± 4,1	2,44*
RV ( % .)	186,9 ± 15,8	57,4 ± 8,1	7,29*
RV/TLC (%)	159,2 ± 8,9	102,9 ± 9,4	4,35*
FEV <sub>1</sub> ( % .)	32,8 ± 2,8	53,3 ± 3,6	4,49*
FEV <sub>1</sub> /FVC (%)	44,9 ± 4,6	87,8 ± 2,5	8,19*

:\* -

(3 / )

DLCO DL. - 2. -

DLCO KCO [9], - . [1, 12].  $\geq 60$  -

( TLC, VC RV - , 2 30- -

FEV<sub>1</sub>/FVC). - -

DL - , -

RV RV/TLC). ( - 2 -

DL. 13), 60 . . ( 9

(8 17) 2 -

60 . . -

(3 / ) -

2

**3 / (M ± m)**

		30-	t	Δ	t
(n = 13)					
PaO <sub>2</sub> ( . )	51,7 ± 1,7	64,2 ± 3,2	3,45*	+12,5 ± 2,2	5,62*
PaCO <sub>2</sub> ( . )	46,1 ± 1,9	46,3 ± 1,7	0,09	+0,2 ± 0,9	0,26
(n = 17)					
PaO <sub>2</sub> ( . )	50,9 ± 1,9	61,9 ± 2,2	3,79*	+10,9 ± 1,7	6,36*
PaCO <sub>2</sub> ( . )	44,2 ± 2,1	44,3 ± 1,9	0,06	-0,2 ± 0,6	0,30

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DL - (3 / ) -

RV 3. (5 / ). -

5 / -

2(+22,6 ± 2,4 .

[1, 12]. - ).

( 2-36 . ) -

5 / ( 2

30- -51 . ).

5 / -

2' -

[1]. - 2 -

3 / 5 / (M ± m)

		30-	t	△	t
3 /					
PaO <sub>2</sub> ( . . )	50,9 ± 1,9	61,9 ± 2,2	3,79*	+10,9 ± 1,7	6,36*
PaCO <sub>2</sub> ( . )	44,2 ± 2,1	44,3 ± 1,9	0,06	-0,2 ± 0,6	0,30
5 /					
PaO <sub>2</sub> ( . . )	50,1 ± 1,9	72,6 ± 3,0	6,36*	+22,6 ± 2,4	9,37*
PaCO <sub>2</sub> ( . )	43,7 ± 1,5	45,3 ± 1,8	0,67	+1,6 ± 0,7	2,17

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1. Idiopathic Pulmonary Fibrosis: Evidence-based Guidelines for Diagnosis and Management [Text] // Am. J. Respir. Crit. Care Med. – 2011. – Vol. 183. – P. 788–824.

DL: 6. Braghiroli, A. LTOT in pulmonary fibrosis [Text] / A. Braghiroli, F. Ioli, E.L. Spada et al. // Monaldi Archives for Chest Disease. – 1993. – Vol. 48, 5. – P. 437–440.

DL, ; DL, 7. Douglas, W.W. Idiopathic Pulmonary Fibrosis. Impact of Oxygen and Colchicine, Prednisone, or No Therapy on Survival [Text] / W.W. Douglas, J.H. Ryu, D.R. Schroeder // Am. J. Respir Crit. Care Med. – 2000. – Vol. 161. – P. 1172–1178.

2. (3 / ) 8. Global Initiative for Chronic Obstructive Lung Disease (Updated 2011) // Electronic Resources: www.goldcopd.com

3 5 / 9. Johnson, D.C. Importance of adjusting monoxide diffusing capacity (D<sub>L</sub>CO) and carbon monoxide transfer coefficient (KCO) for alveolar volume [Text] / D.C. Johnson // Respiratory Medicine. - 2000. - Vol. 94. - P. 28-37.

1. , . . 10. Kim, V. Oxygen Therapy in Chronic Obstructive Pulmonary Disease [Text] / V. Kim, J.O. Benditt, R.A. Wise et al. // Proc. Am. Thorac. Soc. – 2008. – Vol. 5. – P. 513–518.

[ ] / . . . : 11. Polonski, L. Effects of long term oxygen therapy in patients with idiopathic pulmonary fibrosis. I. Effect on the course of the primary disease and on pulmonary circulation [Text] / L. Polonski, A. Krzywiecki, A. Polonska et al. // Polskie Archiwum Medycyny Wewnętrznej. – 1995. – Vol. 94, 4. – P. 331–336.

2. , . . [ ] / 12. Stoller, J.K. Oxygen Therapy for Patients With COPD. Current Evidence and the Long-Term Oxygen Treatment Trial [Text] / J.K. Stoller, R.J. Panos, S. Krachman et al. // Chest. – 2010. – Vol. 131, 1. – P. 179–187.

3. , . . , . . . - : 5. An Official ATS/ERS/JRS/ALAT Statement: