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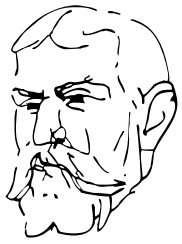

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KOMPLEKSOWE WZORCE WSPÓŁWYSTĘPOWANIA: POCHP I DEPRESJA. ASPEKTY LECZENIA

Natalia V. Moisieieva, Liliya V. Burya, Anna A. Kapustianskaya, Iryna A. Kolenko, Maria A. Rumyantseva, Oleksii H. Shumeiko

HIGHER STATE EDUCATIONAL ESTABLISHMENT OF UKRAINE "UKRAINIAN MEDICAL STOMATOLOGICAL ACADEMY", POLTAVA, UKRAINE

ABSTRACT

Introduction: Data on the prevalence of psychopathological disorders in the exacerbation of chronic obstructive pulmonary disease (COPD) are very heterogeneous. COPD and depression have common predisposing factors.

The aim: The aim of the research is to conduct a comprehensive assessment of the effect of paroxetine on the level of depressive disorders in the exacerbation of severe degree COPD in women.

Materials and methods: The study included patients with severe degree COPD and depressive disorder. A step-by-step test, dynamometry of muscular strength of muscle groups and calculation of the percent ratio of muscular strength to mass were performed for all patients, and the strength of the respiratory muscles was measured. To assess the level of depression, the HADS questionnaire and the CES-D self-questionnaire were used. Assessment of the severity of the patient's condition was conducted according to the Hospital Alert and Depression Scale (HADS).

Results: In exacerbation of severe COPD, the level of depression in patients correlates with the severity of the main criteria: FEV1, the 6-minute step test distance, oxygen saturation after the 6-minute step test, expiratory pressure in the oral cavity.

Conclusions: Upon the synchronization of the standard therapy, the level of depression in patients with exacerbation of severe COPD effectively decreases. Paroxetine is a valid choice in the comprehensive treatment of COPD. According to the data of evidence-based medicine, the medication demonstrates high efficiency and favorable safety profile, without exerting a negative effect on COPD, which is of key significance in the combined pathology treatment.

KEY WORDS: COPD, depression, antidepressants, paroxetine

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INTRODUCTION

Depression is very common in our time. Radical political and economic changes, hostilities in various regions, and the threat of terrorist acts are obvious causes for the development of depression in modern society. In the last revision of the "Global Strategy for the Diagnosis, Treatment and Prevention of Chronic Obstructive Pulmonary Disease (COPD)" - (GOLD, Revision 2016), the problem of comorbidity is given special attention, emphasizing the significant contribution of concomitant pathology to the overall severity of the underlying disease. Depression is a frequent comorbidity occurring in patients with chronic pulmonary disease. [1, 2]

The frequency of the occurrence of depressive symptoms, according to various sources, ranges from 25.0 to 90.0 %, thus the prevalence of depression in patients with somatic diseases is up to 24.2 %. [3, 4]

The data on the prevalence of psychopathological disorders in COPD are very heterogeneous. COPD and depression have common predisposing factors. [5, 6]

Treatment of depression in patients with COPD, as well as COPD treatment in patients with depression, should be performed in accordance with standard recommendations. The choice of antidepressant should be safe and effective even in comprehensive patterns of comorbidity. From the analysis of literature, the necessity of searching for a specific therapeutic tactic of depressive disorders in COPD is obvious. This will allow us to use the pathogenetic approach in providing assistance to these patients. The overwhelming majority of both domestic and foreign researchers agree on the high effectiveness and safety of antidepressants from the group of selective inhibitors of serotonin reuptake, the absence of respiratory side effects and unwanted interactions with medications for the treatment of the underlying disease. [7, 8] Among contemporary antidepressants, paroxetine is of great interest.

THE AIM

The aim of the research is to conduct the integrated assessment of the effect of paroxetine on the level of depressive disorders in severe COPD exacerbations in women.

Table I. Spirometry parameters in the studied groups (Me [Q25: Q75])

Parameter	Standard therapy Group 1		Standard therapy + paroxetine Group 2		p
	Before treatment	After treatment	Before treatment	After treatment	
	1	2	3	4	
FVC (% against the adequate)	50.53 (41.4:62.6)	48.42 (42.4:62.5)	55.75 (48.3:71.4)	58.23 (48.9:70.6)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
FEV1 (% against the adequate)	32.9 (28.2:41.7)	33.06 (28.1:47.6)	33.12 (30.7:49.6)	39.34 (29.1:52.1)	p1-3>0.05 p2-4>0.05
			p>0.05		
The 6-minute step test walking distance (m)	328 (250:340)	376 (300:410)	326 (247:350)	418 (350:490)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Heart rate per 1 minute after 6-minute step test	132 (88:103)	93 (86:106)	120 (88:111)	82 (79:94)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Respiratory rate per 1 minute prior to 6-minute step test	24 (16:26)	20 (15:21)	26 (19:27)	16 (14:21)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Respiratory rate per 1 minute after 6-minute step test	28 (24:31)	20 (24:29)	29 (23:31)	21 (17:22)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
SpO2 prior to 6-minute step test (%)	96 (94:97)	98 (97:99)	96 (94:96)	99 (98:99)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
SpO2 after 6-minute step test (%)	94 (92:97)	98 (95:98)	94 (94:97)	99 (98:99)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Right hand dynamometry (kg)	37 (32:42)	38 (32:45)	37 (33:42)	45 (41:52)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Left hand dynamometry (kg)	35 (26:38)	37 (28:41)	35 (25:39.5)	40 (39.5:49)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Torso dynamometry (kg)	55 (45:70)	70 (56.6:90)	55 (44:71)	92 (80:105)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Expiratory pressure at the level of the oral cavity (Pa)	6.0 (4:8)	6.92 (5:9.1)	6.15 (4.1:9.0)	7.79 (5.7:10)	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		

MATERIALS AND METHODS

In Study included 53 patients with severe degree COPD course, evidenced by spirometry. All patients are women. When admitted to the hospital, patients were divided into 2 groups. Patients of group 1 (n = 21), aged 52.5 ± 0.8 years, underwent standard therapy of exacerbation. Patients of group 2 (n = 22), aged 57.9 ± 0.4 years, received paroxetine for 14 days (I tablet (0.20 g) once daily), along with the standard therapy. All patients on the first day of admission and on the 12th-14th days of treatment underwent a step-by-step test in compliance with standard protocols, dynamometry of muscular strength of muscle groups and calculation of the percent ratio of muscular strength to mass were performed for all patients, and the strength of the respiratory muscles was measured according to maximal expiratory pressure at the oral cavity level using the Micro RPM (Respiratory Pressure Meter) device, the data was counted in pascals.

Table II. Indicators of psychological status in patients (M ± m)

Parameter	Standard therapy Group 1		Standard therapy + paroxetine Group 2		p
	Before treatment	After treatment	Before treatment	After treatment	
	1	2	3	4	
Anxiety manifestation (HADS score, points)	7±0.9	6.9±0.4	7.5±0.8	5.8±0.5	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Depression manifestation (HADS score, points)	7.6±0.3	6.0±0.8	7.7±0.4	5.4±0.5	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		
Depression manifestation (CES-D questionnaire, points)	18±0.7	16.5±0.2	19.9±0.9	15.2±0.2	p1-3>0.05 p2-4>0.05
	p>0.05		p>0.05		

To assess the level of depression, the HADS questionnaire and the CES-D self-questionnaire were used. Assessment of the severity of the patient's condition was conducted according to the Hospital Alert and Depression Scale (HADS) [9]. Patients' psychological status was assessed on the first day of admission and before the discharge from the hospital. The duration of treatment is due to the fact that this period was enough to overcome the characteristics of exacerbation in COPD.

Statistical calculations were performed using the STASTICA for Windows 8.0 software package. The data is presented in the form of a median (Me) and a quartile span [Q1: Q2] (percentiles are 25 and 75); as well as the mean value (M) and the standard error of mean value (m). Nonparametric methods of statistical analysis were used. In order to compare the quantitative indices in the unrelated groups, the Mann-Whitney test was used, and in the related ones – Wilcoxon test. To compare the frequencies of the binary sign in two unrelated groups, Fisher's criterion was used; in cases where the frequencies were less than 10, the $\chi 2$ criterion with Yates correction. The analysis of the connection between the two characteristics was carried out by the Spearman method. The differences were considered reliable at a level of statistical significance less than 0.05.

RESULTS AND DISCUSSION

The assessment of treatment outcomes of COPD with the use of standard therapy and inclusion of paroxetine showed that the clinical effect was achieved in both groups. However, higher efficiency of treatment of exacerbations was obtained in patients, who additionally received paroxetine. The initial values of the indices in the compared groups were the same; after treatment, a more significant decrease was achieved in patients receiving combination therapy. Inclusion of this medication in the standard protocol for the treatment of exacerbations of COPD had a positive clinical effect, consisting of increasing the strength of skeletal and respiratory muscles, increasing the speed of ventilation of the lungs, increasing the tolerance to physical activity, increasing the oxygen saturation, reducing the rate of cardiac contraction and respiratory rate (Table I).

In the group of combined treatment, we observed a positive change in the psychological status of patients: decrease in the manifestations of depression according to the scale of specialized questionnaires (Table II). Before treatment, the compared data were identical, which is confirmed by the absence of statistically significant differences between them (p>0.05).

Positive effect of paroxetine on somatopsychic manifestations of the disease – depression, is implemented due to the improvement of general clinical characteristics that significantly affect the mental status of the patient. In particular, physical activity of patients and tolerance to physical activity increase. In addition, the respiratory function improves, as a result of which the oxygenation of the blood is normalized. The positive dynamics of external respiration rates is to a large extent due to the increased physical possibilities of diaphragmatic respiration, which in patients with COPD is the only mechanism of effective inhalation due to pronounced emphysema and extremely limited chest capacity to volume increase. The improvement of the respiratory function associated with respiratory muscles is indicated by the increase of expiratory pressure at the level of the oral cavity.

The dependence of somatopsychic status on the state of external respiration and physical condition is confirmed by the data of a high level of correlation between the psychometric indices of depression and anxiety, revealed prior to treatment, with the main clinical characteristics of COPD. In particular, with OFV1 (r = -0.72; p> 0.05), with the 6-minute step test distance (r = -0.61; p>0.05); with oxygen saturation after 6-minute step test (r = -0.77; p> 0.05); with expiratory pressure in the oral cavity (r = -0.53; p> 0.05).

Thus, paroxetine is a valid choice in the treatment of COPD. According to the data of evidence-based medicine, the medication demonstrates high efficiency and favorable safety profile, without exerting a negative effect on COPD, which is of key significance in the combined pathology treatment.

CONCLUSIONS

Approaching the choice of antidepressant for the relief of depressive disorders in women with severe degree COPD, one must take into account the effectiveness and favorable safety profile of the medication in a particular patient. In exacerbation of severe COPD, the level of depression in patients correlates with the severity of the main criteria: FEV1, the 6-minute step test distance, oxygen saturation after the 6-minute step test, expiratory pressure in the oral cavity. Upon the synchronization of the standard therapy, the level of depression in patients with exacerbation of severe COPD effectively decreases. It is advisable to prescribe paroxetine for 12-14 days (0.20 g once daily), as an addition to the standard therapy.

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ADDRESS FOR CORRESPONDENCE

Anna A. Kapustianskaya
Shevchenko str. 23, 36000, Poltava, Ukraine
tel: +380954238862
e-mail: nusaykap@gmail.com

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