ORIGINAL ARTICLE

CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND COMORBIDITIES: MANAGEMENT OF SOMATOFORM DISORDERS

Liliia V. Burya, Anna A. Kapustianska , Nataliia V. Moiseieva, Andrii V. Vakhnenko, Mariia O. Rumiantseva, Iryna M. Zviagolska

POLTAVA STATE MEDICAL UNIVERSITY, POLTAVA, UKRAINE

ABSTRACT
The aim: To perform a comprehensive evaluation of the effect of paroxetine on the degree of somatoform disorders in exacerbation of severe COPD in women.
Materials and methods: The study involved 53 female patients with severe COPD (Group D), confirmed by instrumental methods of study. At hospitalization, patients were divided into 2 groups. Patients of Group 1 (n = 21; aged 52.5 ± 0.8 years old) underwent basic exacerbation therapy. Patients of Group 2 (n = 22; aged 57.9 ± 0.4 years old) underwent basic exacerbation therapy supplemented with paroxetine for 14 days, 1 tablet (0.20 g) once a day.
Results: The basic therapy for treatment of COPD exacerbations, supplemented with paroxetine, led to a positive clinical effect, confirmed by increase in skeletal and respiratory muscular system, increased parameters of pulmonary ventilation, increased tolerance to physical load, increased oxygen saturation, decreased heart rate and breathing rate.
Conclusions: The strategy for choosing an antidepressant to provide multidisciplinary care for somatoform disorders in women with exacerbation of severe COPD (group D) should take into account the efficacy and favorable safety profile and personalization of the drug. In exacerbation of severe COPD, the degree of somatoform disorders in patients correlates with the severity of the main criteria: FVC1, the distance walked during the 6-minute step test, oxygen saturation after the 6-minute step test, end-expiratory pressure in the oral cavity.

KEY WORDS: somatoform disorders, Chronic Obstructive Pulmonary Disease (COPD), antidepressant, Paroxetine

INTRODUCTION

Currently, somatoform disorders are the major issue in the global public health system due to their devastating effect.

Long-lasting radical political and economic changes, hostilities in various regions, the threat of terrorist acts are obvious reasons for the increase in cases of somatoform disorders in our society [1]. The latest revision of the Global Strategy for the Diagnosis, Treatment and Prevention of Chronic Obstructive Pulmonary Disease (COPD) - (GOLD, revision 2017) considers the problems of comorbidity, emphasizes the significant contribution of comorbid pathology into the overall severity of the underlying disease. Somatoform disorders are one of the most common comorbid pathologies in patients with chronic pulmonary disease. [2, 3, 4]

The incidence of symptoms of somatoform disorders, according to various sources, varies from 25.0 to 90.0%, so their prevalence in patients with somatic diseases reaches 24.2%. [5, 6, 7]

Publications report that the prevalence of psychopathological disorders in COPD is very heterogeneous. Etiopathogenetically, COPD and somatoform disorders have common favorable factors. [8, 9]

Treatment of somatoform disorders in patients with COPD, as well as treatment of COPD in patients with somatic disorders, should be carried out in accordance with the uniform international guidelines. The choice of antidepressant should be safe and effective even in complex patterns of comorbidity. The analysis of the publication has revealed the need to search for specific mode of treatment of COPD-associated somatoform disorders [10]. It enables the use of pathogenetic approach to providing care to patients with above disease. The vast majority of both domestic and foreign researchers agree on the high efficacy and safety of antidepressants of the group of selective serotonin reuptake inhibitors, the absence of side effects from the respiratory system and undesirable interactions with drugs for treatment of the underlying disease. [11]. Paroxetine is of particular interest among modern antidepressants.

THE AIM

To perform a comprehensive evaluation of the effect of paroxetine on the degree of somatoform disorders in exacerbation of severe COPD in women.

MATERIALS AND METHODS

The study involved 53 female patients with severe COPD (Group D), confirmed by instrumental methods of study.

At hospitalization, patients were divided into 2 groups. Patients of Group 1 (n = 21; aged 52.5 ± 0.8 years old) underwent basic exacerbation therapy. Patients of Group 2 (n = 22; aged 57.9 ± 0.4 years old) underwent basic exacerbation therapy supplemented with paroxetine for 14 days, 1 tablet (0.20 g) once a day. All patients have been under examination and inpatient treatment for the last three years in the PUC "First City Clinical Hospital of Poltava City Council".

On the first day of hospitalization and on day 12-14 of the treatment all patients underwent the step test according to the standard protocol; dynamometry of muscle strength was measured by the wrist dynamometer CAMRY EH101; the percentage of muscle strength to body weight was calculated; strength of the respiratory muscles at the maximum expiratory pressure at the level of the oral cavity was measured using the Micro RPM (Respiratory Pressure Meter) device; the data were measured in pascals.

The HADS questionnaire and the CES-D depression self-questionnaire have been used to evaluate the level of somatoform disorders. Evaluation of the severity of the patient's condition has been made according to the Hospital Scale of Anxiety and Depression (HADS) [6]. The female patients' psychological status was determined on the day of admission and at discharge from the hospital. The duration of treatment was designated according to the time sufficient to alleviate the manifestations of COPD exacerbation.

Statistical calculations have been made using the "STASTICA for Windows 8.0" software. The data are presented as median (Me) and quartile scale [Q1: Q2] (percentile - 25 and 75), as well as the mean value (M) and the error of mean (m). Nonparametric methods of statistical analysis have been used. To compare the quantitative parameters, the Mann-Whitney test and the Wilcoxon test have been used in the independent and dependent groups, respectively.

The Fisher's exact test was used to compare the frequencies of binary variables in two independent groups; in cases where the frequencies were less than 10, the $\chi 2$ test with Yates correction was used. The analysis of the correlation between two variables was made by the Spearman method. Differences were considered significant, when statistical significance was less than 0.05.

RESULTS

Evaluation of the outcomes of COPD exacerbations treatment using basic therapy only and supplemented with paroxetine showed clinical effect in both groups. However, the apparent effectiveness of exacerbation treatment was noted in female patients who received supplementary paroxetine. The initial values were identical in the comparison groups, and at the end of inpatient treatment a more pronounced improvement was achieved in patients who were on combination therapy.

The basic therapy for treatment of COPD exacerbations, supplemented with paroxetine, led to a positive clinical effect, confirmed by increase in skeletal and respiratory muscular system, increased parameters of pulmonary ventilation, increased tolerance to physical load, increased oxygen saturation, decreased heart rate and breathing rate. Thus, the index of functional vital lung capacity (VLC) (%) in patients of Group 1 was 50.53, and after treatment it significantly decreased to 48.42 (p <0.05), whereas in Group 2 this index was 55.75 before treatment and 58.23 after treatment (p<0.05). The index of forced vital capacity (FVC1) (%) in Group 1 was 33.06 after treatment, and in Group 2 it was 39.34 (p <0.05). The 6-minute step test showed the following results: distance walked by patients (m) in Group 1 was 328 and 376 before and after treatment, respectively (p <0.05); in Group 2 it was 326 and 418, respectively (p<0.05); heart rate per 1 min after the test in Group 1 was 132 and 93 before and after treatment, respectively (p <0.05) and in Group 2 it was 120 and 82, respectively (p <0.05); breathing rate per 1 min before the test in Group 1 was 24 and 20 before and after treatment, respectively (p <0.05) and in Group 2 it was 26 and 16, respectively (p <0.05); breathing rate per 1 min after the test in Group1 was 28 and 20 before and after treatment, respectively (p <0.05) and in Group 2 it was 29 and 21, respectively (p <0.05); SpO2 index before the test (%) in Group 1 was 96 and 98 before and after treatment, respectively (p <0.05) and in Group 2 it was 96 and 99, respectively (p <0.05); SpO2 index after the test (%) in Group 1 was 94 and 98 before and after treatment, respectively (p <0.05) and in Group 2 it was 94 and 99, respectively (p <0.05); index of right hand-grip dynamometry (kg) in Group 1 was 37 and 38 before and after treatment, respectively (p <0.05) and in Group 2 it was 37 and 45, respectively (p <0.05); index of left hand-grip dynamometry (kg) in Group 1 was 35 and 37 before and after treatment, respectively (p <0.05) and in Group 2 it was 35 and 40, respectively (p <0.05); static dynamometry index (kg) in Group1 was 55 and 70 before and after treatment, respectively (p <0.05) and in Group 2 it was 55 and 92, respectively (p <0.05); end-expiratory pressure index at the level of the oral cavity (PA) in Group 1 was 6.0 and 6.9 before and after treatment, respectively (p <0.05) and in Group 2 it was 6.15 and 7.79, respectively (p <0.05).

In the group of combined treatment with paroxetine, a positive change in the psychological status of patients was shown in the reduction of manifestations of somatoform disorders on the scales of specialized questionnaires. Prior to treatment, the compared data were identical, as evidenced by the absence of statistically significant differences between them (p <0.05).

The analysis of the parameters of the psychological status of the female patients showed changes according to the HADS scale: anxiety (score) in Group 1 was 7 ± 0.9 and 6.9 ± 0.4 before and after treatment, respectively (p <0.05) and in Group 2 it was 7.5 ± 0.8 and 5.8 ± 0.5, respectively (p <0.05); depression (score) in Group 1 was 7.6 ± 0.3 and 6.0 ± 0.8 before and after treatment, respectively (p <0.05) and in Group 2 it was 7.7 ± 0.4 and 5.4 ± 0.5, respectively (p <0.05). The findings on the study of depression (questionnaire CES-D scores) showed that in Group 1 group it was 18 ± 0.7 and 16.5 ± 0.2 before and after treatment, respectively (p <0.05) and in Group 2 it was 19.9 ± 0, 9 and 15.2 ± 0.2, respectively (p <0.05).

DISCUSSION

The positive effect of paroxetine in somatoform disorders is achieved by improving the general clinical characteristics, which significantly affect the mental status of patients. The group of patients emphasizes the increase in physical activity, increasing tolerance to physical load. Blood oxygen saturation was also come to normal due to improving the respiratory function.

The positive dynamics of external respiration in particular is associated with increased physical data of diaphragmatic breathing, which in COPD patients is the only mechanism of effective breathing due to prominent emphysema caused by the inability of the chest to increase in volume. Increased end-expiratory pressure in the oral cavity will indicate an improvement in respiratory function, which is associated with respiratory muscles.

The relationship between somatopsychic status, respiratory function and physical state is evidenced by the indices of a high level of correlation between psychometric data of depression and anxiety received before treatment with the major clinical manifestations of COPD, as well as with FVC1 ($r = -0.72$; $p < 0.05$), with a distance walked during the 6-minute step test ($r = -0.61$; $p < 0.05$); with oxygen saturation after 6 min step test ($r = -0.77$; $p < 0.05$); with end-expiratory pressure in the oral cavity ($r = -0.53$; $p < 0.05$).

Thus, paroxetine is a rational choice in the comprehensive treatment of somatoform disorders in patients with COPD. According to evidence-based medicine, the drug demonstrates high efficacy and a favorable safety profile, and is one of the most promising agents, which is crucial in the treatment of comorbid pathology.

CONCLUSIONS

The strategy for choosing an antidepressant to provide multidisciplinary care for somatoform disorders in women with exacerbation of severe COPD (group D) should take into account the efficacy and favorable safety profile and personalization of the drug. In exacerbation of severe COPD, the degree of somatoform disorders in patients correlates with the severity of the main criteria: FVC1, the distance walked during the 6-minute step test, oxygen saturation after the 6-minute step test, end-expiratory pressure in the oral cavity.

During the synchronization of standard therapy of somatoform disorders in patients with exacerbation of severe COPD, an effective impact on the cascade of pathological lesions was noted. The findings of the study enable to reach a consensus on the management of treatment and recommend paroxetine as a supplement to the basic therapy to slow the progression of somatoform disorders.

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ORCID and contributionship:
Liliia V. Burya: 0000-0003-3137-6783 [A, D, F]
Anna A. Kapustianska: 0000-0001-9150-8472 [D, F]
Nataliia V. Moiseieva: 0000-0001-8901-3710 [B, D]
Andrii V. Vakhnenko: 0000-0002-9553-0623 [C]
Mariia O. Rumiantseva: 0000-0001-7247-9792 [E]
Iryna M. Zviagolska: 0000-0001-7531-3966 [C, E]

Conflict of interest:
The Authors declare no conflict of interest.

CORRESPONDING AUTHOR
Liliia V. Burya
Poltava State Medical University
23 Shevchenko st., 36011 Poltava, Ukraine
 tel: + 380957829939
e-mail: burya.lilia@gmail.com

A - Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis,

D – Writing the article, **E** – Critical review, **F** – Final approval of the article