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Opportunities of Fenspiride anti-inflammatory therapy in patients with chronic obstructive pulmonary disease

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Abstract

Background: Currently, bronchodilator medication recommended in the basic treatment of stable chronic obstructive pulmonary disease (COPD) does not have direct anti-inflammatory properties. According to recent researches Fenspiride has a multi-functional effect on various links of the inflammatory process in the respiratory tract. The purpose of this study was to assess the clinical efficacy and safety of Fenspiride in the treatment of COPD in remission.
Material and methods: The research was performed on a group of 42 patients with COPD in stages GOLD 1 and GOLD 2. Depending on the treatment applied, patients were divided into 2 groups. The first group received Fenspiride with basic treatment and the second group only basic treatment. The main symptoms, pulmonary ventilation indexes and exercise tolerance were assessed in all patients.
Results: The results obtained showed that Fenspiride improves the symptoms of the disease, pulmonary ventilation and increases patients' exercise tolerance.
Conclusions: Fenspiride is an effective and harmless remedy that can be used for the anti-inflammatory treatment of stable COPD in stages GOLD I and II.
Key words: chronic obstructive pulmonary disease, pulmonary ventilation, exercise tolerance.

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Introduction

Chronic obstructive pulmonary disease (COPD) is a common pathological condition characterized by persistent, usually progressive, irreversible or only partially reversible limitation of airflow, associated with an inflammatory response of the airways and lung tissue, as a result of exposure to harmful or gaseous particles [1, 2].

COPD has become a major medical, social, and economic problem for global health systems due to the dizzying rise in both prevalence, and morbidity and mortality [2, 3].

The effectiveness of treatment aimed at stopping the progression of COPD largely depends on the possibilities of attenuation of the chronic inflammatory process as the main link in the pathogenetic chain of the disease [2]. Currently, bronchodilator drugs are recommended in the basic treatment of stable COPD, medication, which does not have direct anti-inflammatory properties.

Current pharmacological treatment of stable COPD reduces the symptoms, frequency, and severity of exacerbations, but does not change the long-term decline in lung function and patient health. This dictates the need to look for new medications, which would increase the effectiveness of existing therapy [4], which refers primarily to the treatment of bronchial inflammation that is resistant to corticosteroids in most patients [5].

Some perspectives in the anti-inflammatory treatment of COPD are associated with the use of Fenspiride, which according to multiple recent experimental and clinical researches have a multi-functional effect on various links of the inflammatory process in the respiratory tract [6, 7].

The purpose of the study consists in the assessment of the clinical efficacy and safety of Fenspiride in the treatment of patients with stable COPD, grade GOLD 1 and GOLD 2 over 6 months.

Material and methods

The study included 42 patients (38 men and 4 women) with a diagnosis of stable COPD. The age of the patients ranged from 46 to 55 years (mean age = 49.3 ± 2.8 years). The average disease duration was 14.3 ± 2.5 years, and the smoking index was equal to 11 packs / year. Patients did not have major concomitant illnesses, which could lead to their exclusion from the study. Depending on the treatment applied, patients were divided into 2 groups, comparable by age, gender, duration of illness and smoking. The patients in group I (baseline) (n = 20, 18 men and 2 women) were administered Fenspiride (Eurespal, manufacturer "Servier",

France) at a dose of 80 mg twice daily per os, based on Salbutamol treatment, if necessary. The patients in the control group II (n = 22, 20 men and 2 women) received only Salbutamol treatment when needed. All patients underwent clinical, laboratory and instrumental investigations, including spirometry and chest radiography.

To assess the functional capacity of patients with COPD, exercise tolerance was determined using the 6 minute walk test (6MWT) [8]. After completing the 6 minutes of walking, the distance walked by the patient was measured and a questionnaire for the subjective evaluation of fatigue and dyspnea felt (Borg scale) was applied to each studied patient [9].

The statistical analysis was performed using the program "STATISTICA for Windows, Version 11". Data were presented as mean ± standard deviation. The two-tailed statistical criterion "Student" was also used to evaluate the data before and after treatment. A "p" value of less than 0.05 was considered statistically significant.

Results and discussion

The main clinical symptoms (shortness of breath, cough, and sputum expectoration) signaled a genuine decrease already after 3 months of treatment. After a 6-month course of treatment, compared to the intermediate stage of the study, a further reduction in the severity of all clinical symptoms was observed (fig. 1).

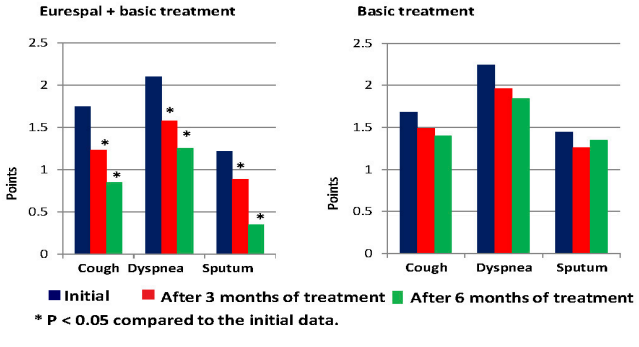

Fig. 1. Dynamics of the clinical symptoms after 6 months of treatment.

The positive dynamics of clinical symptoms took place against a background of improved pulmonary ventilation indexes. After 3 months of treatment, the maximum expiratory volume in the first second (FEV1) increased significantly in group I and over the next 3 months this index continued to increase, but its increase was not statistically significant. At the end of the treatment course, a statistically significant increase of the FEV1 / vital capacity ratio was reported, compared to the initial data and the results obtained at the end of the first 3 months of treatment. In group II, the same indexes, calculated after 3 and then 6 months of treatment did not show significant changes (fig. 2).

The assessed shortness of breath before and after the walk test also changed. The degree of dyspnea at the end of

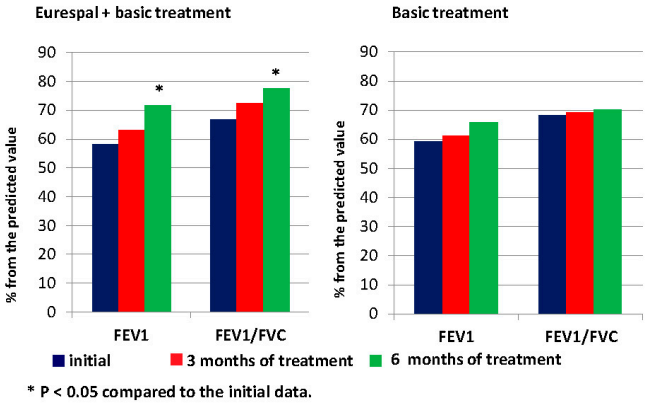

Fig. 2. Dynamics of the indices of external respiration function after 6 months of treatment.

the walk test examined after 3 and 6 months of treatment was more pronounced in group II (fig. 3).

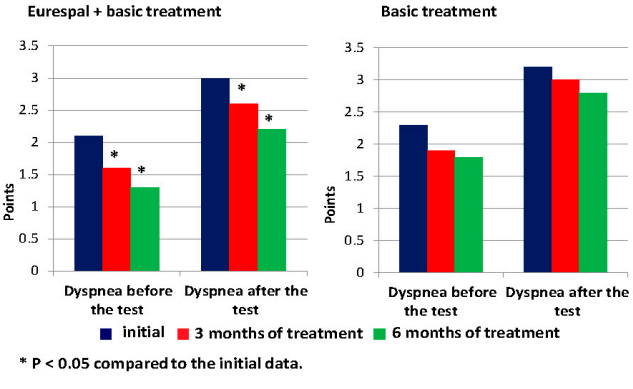

Fig. 3. Dynamics of dyspnea on physical exertion according to the data of the 6-minute walk test.

According to a 6-minute walk test, the administration of Fenspiride in the complex treatment of patients with COPD also contributed to increased exercise tolerance. The distance walked by the patients of the first group after 3 months of treatment increased by 32.5% (from 296.1 ± 18.3 m to 392.3 ± 17.4 m, $p < 0.05$), and by the end of treatment the increase in the distance walked was insignificant, 3.1% by the 6th month, compared to the 3rd month.

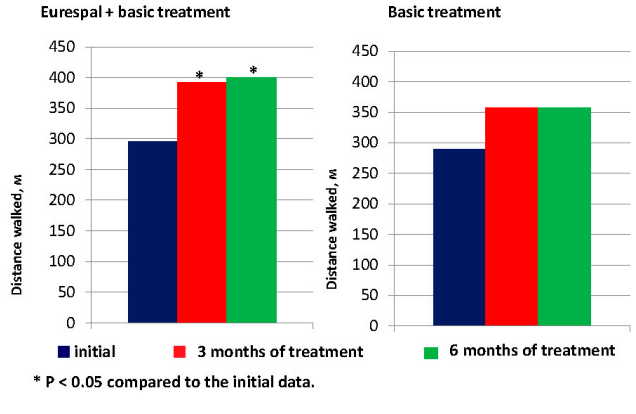

Fig. 4. Dynamics of the exercise tolerance after 6 months of treatment.

In group II this indicator did not change significantly: after 3 months of treatment the distance walked increased by 23.5% (from 289.5 ± 16.8 m to 357.4 ± 15.7 m, $p > 0.05$), and over 6 months – by 2.4% compared to the 3rd month (fig. 4).

The frequency of use of salbutamol in the group of patients taking Fenspiride was significantly lower not only in relation to the reference values ($p < 0.05$), but also in comparison with the similar values in group II, which showed a positive dynamic, but insignificant throughout the treatment.

The doctor's assessment of the tolerance of Eurespal treatment showed no adverse reactions during the study, except in two cases (nausea and headache), which did not require drug correction.

The results obtained in the current study are consistent with the investigations of other authors [5, 7].

Conclusions

The study results revealed that the group of the patients who underwent treatment with Fenspiride in combination with Salbutamol, if necessary, showed significant decrease in main symptoms severity, improved pulmonary ventilation indexes and increased exercise tolerance. This allows us to conclude that Fenspiride is an effective and harmless remedy that can be used for the anti-inflammatory treatment of stable COPD in stages GOLD I and II.

References

1. [Ministry of Health of the Republic of Moldova]; Sofronie S, Moscovciuc A, Bardan L. Bronhopneumopatia cronică obstructivă: Protocol clinic national [Chronic obstructive pulmonary disease: National clinical protocol]. Chisinau: The Ministry; 2013. 67 p. (PCN-18). Romanian.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease: 2020 Report [Internet]. Fontana (USA): GOLD; 2020 [cited 2020 May 13]. Available from: www.goldcopd.com.
3. Rochester CL, Holland AE. Pulmonary rehabilitation and improved survival for patients with COPD. JAMA. 2020;323(18):1783-1785. doi:10.1001/jama.2020.4436.
4. Calzetta L, Ritondo BL, Matera MG, Pezzuto G, Cazzola M, Rogliani P. Investigational treatments in phase I and II clinical trials: a systematic review in chronic obstructive pulmonary disease (COPD). Expert Opin Investig Drugs. 2020 May 27;1-16. doi: 10.1080/13543784.2020.1769064.
5. Barnes PJ. Inflammatory endotypes in COPD. Allergy. 2019;74(7):1249-1256. doi: 10.1111/all.13760. Epub 2019 Mar 31.
6. Bădiță D. Fenspirida – aspecte farmacologice generale și câteva studii farmacologice nonclinice [Fenspiride – general pharmacological aspects and some non-clinical pharmacological studies]. Medicina Modernă [Modern Med]. 2010;17(11):593-596.Romanian.
7. Trofor A. Rolul preparatului Fenspiridă în terapia antiinflamatoare a BPOC: punere la punct [The role of Fenspiride in the anti-inflammatory therapy of COPD]. Medicina Internă [Intern Med]. 2014;11(1):77-90. Romanian.
8. ATS Committee on Proficiency Standards for Clinical Pulmonary Function Laboratories. ATS statement: guidelines for the six-minute walk test. Am J Respir Crit Care Med. 2002;166(1):111-117. doi: 10.1164/ajrccm.166.1.at1102.
9. Matcovschi S, Botezatu A, Dumitraș T, Nikolenko I. Noțiuni de reabilitare pulmonară [Notions of pulmonary rehabilitation]. Chișinău; 2011. 49 p. Romanian.

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Authors' contributions

VC conceptualized the project and drafted the first manuscript. SM interpreted the data. SN and CM critically revised the manuscript. All authors revised and approved the final version of the manuscript.

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Ethics approval and consent to participate

The study was approved by the Research Ethics Committee of *Nicolae Testemitanu* State University of Medicine and Pharmacy, proceedings No 01/26.08.2016. The informed consent was received from every patient.

Conflict of Interests

No competing interests were disclosed.