

# Physiotherapy in patients with chronic respiratory failure in clinical stage

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## INTRODUCTION

Chronic obstructive pulmonary disease (COPD), is a group of respiratory diseases, including pulmonary emphysema and chronic obstructive bronchitis, which almost always present together in varying degrees of manifestation with progressive development of chronic respiratory failure (CRF). The physiotherapy (PT) is the most important part of a complex pulmonary rehabilitation. It positively affects patients with COPD and CRF at all stages of the disease [1] and the long-term effect of a PT course of treatment is undoubtedly proven [2,3]. Weakness of the respiratory muscles in the majority of COPD patients, even in the early stages of the diseases, is observed and it leads to the appearance of hypercapnia, dyspnea, night oxygen desaturation, and reduced functional walking options. It is proven that during physical exercises, diaphragm work increases in COPD patients as compared to healthy individuals, and causes quicker respiratory muscle fatigue and shortness of breath. Inspiratory muscle training (IMT), in addition to the selected physiotherapeutic methodology, is suitable for use in a number of respiratory illnesses, but studies on its influence on the functional status of patients with COPD at the clinical stage are quite controversial. Some researchers conclude that IMT increases the muscle strength and endurance of the respiratory muscles and reduces the dyspnea. Other authors believe that adding of IMT to the general training program does not significantly improve the physical capacity and quality of life of the patients. The exact characteristics of the patients with COPD, which require the inclusion of IMT with devices as part of the therapeutic exercises in PT sessions, have not yet been established [4].

## AIM

To evaluate the effect of PT methodology including inspiratory training device on functional status in patients with acute exacerbation of chronic obstructive pulmonary disease and chronic respiratory failure in clinical stage.

## MATERIAL AND METHODS

20 patients with exacerbation of COPD in clinical stage divided into experimental group (EG) and control (CG) were examined. One week in-hospital physical therapy sessions were conducted. All patients were applied the same PT methodology, but in the EG in addition was included individual inspiratory training device without resistance of inhaled air. For the purpose of the study are double-tracked and evaluated the following tests and measures: breathing rate at rest, saturation and two apneic tests.

## PHYSIOTHERAPY

The PT complex comprised the following administered to patients in both groups: nasal, thoracic and diaphragmatic breathing; rhythmic exercises for distal muscle groups; resistance exercises against upper limbs; specific breathing techniques; relaxing massage of the intercostal muscles; active exercises including slopes and curves; exercises to stimulate expectoration and coughing, and dosed walking. The patients from the EG also performed an inspiratory muscle training with an individual Feedback Device Coach 2 Incentive Spirometer without inspiratory resistance.

## RESULTS

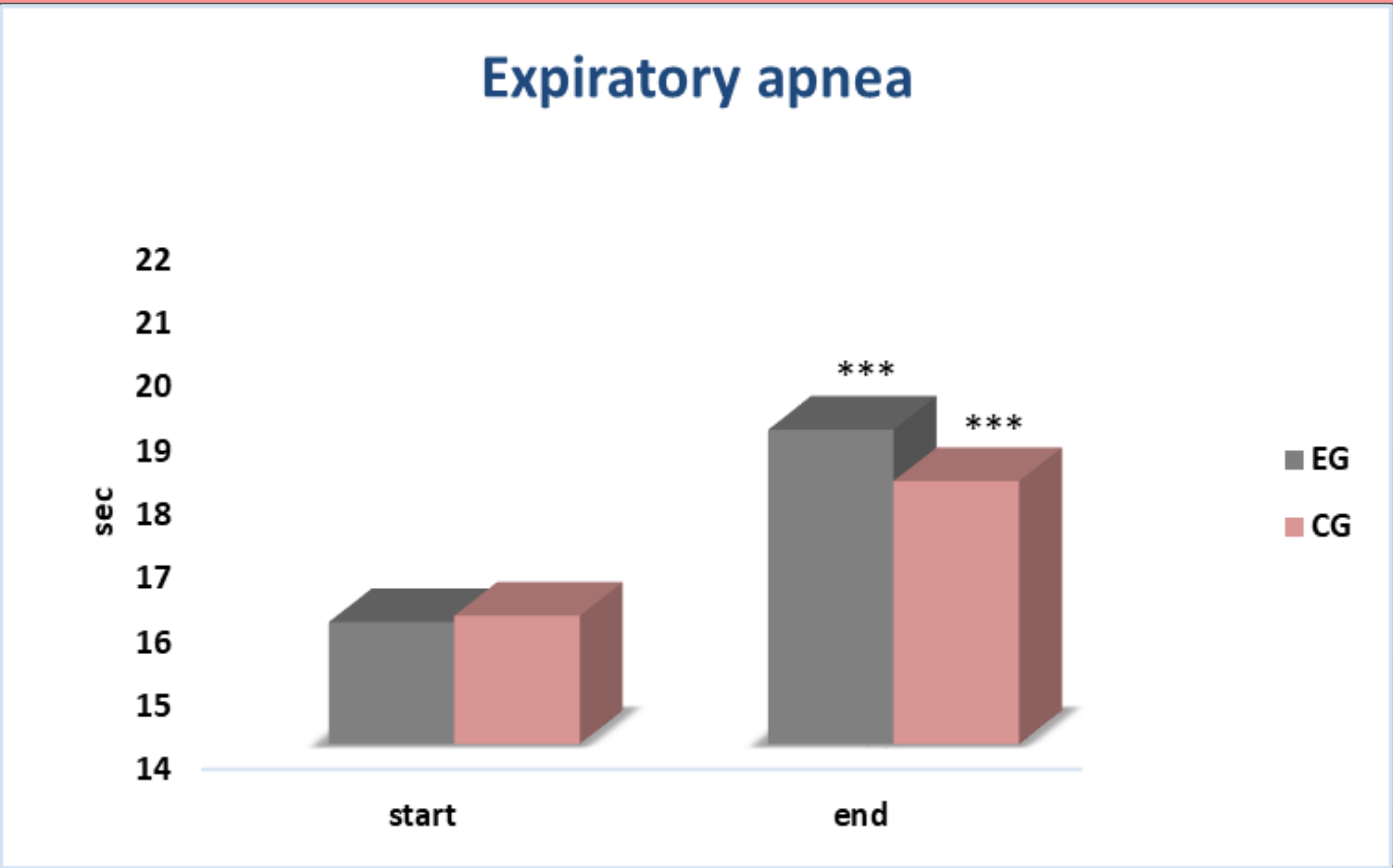


Figure 1. Comparison of initial and final values of the expiratory apnea score for EG and CG

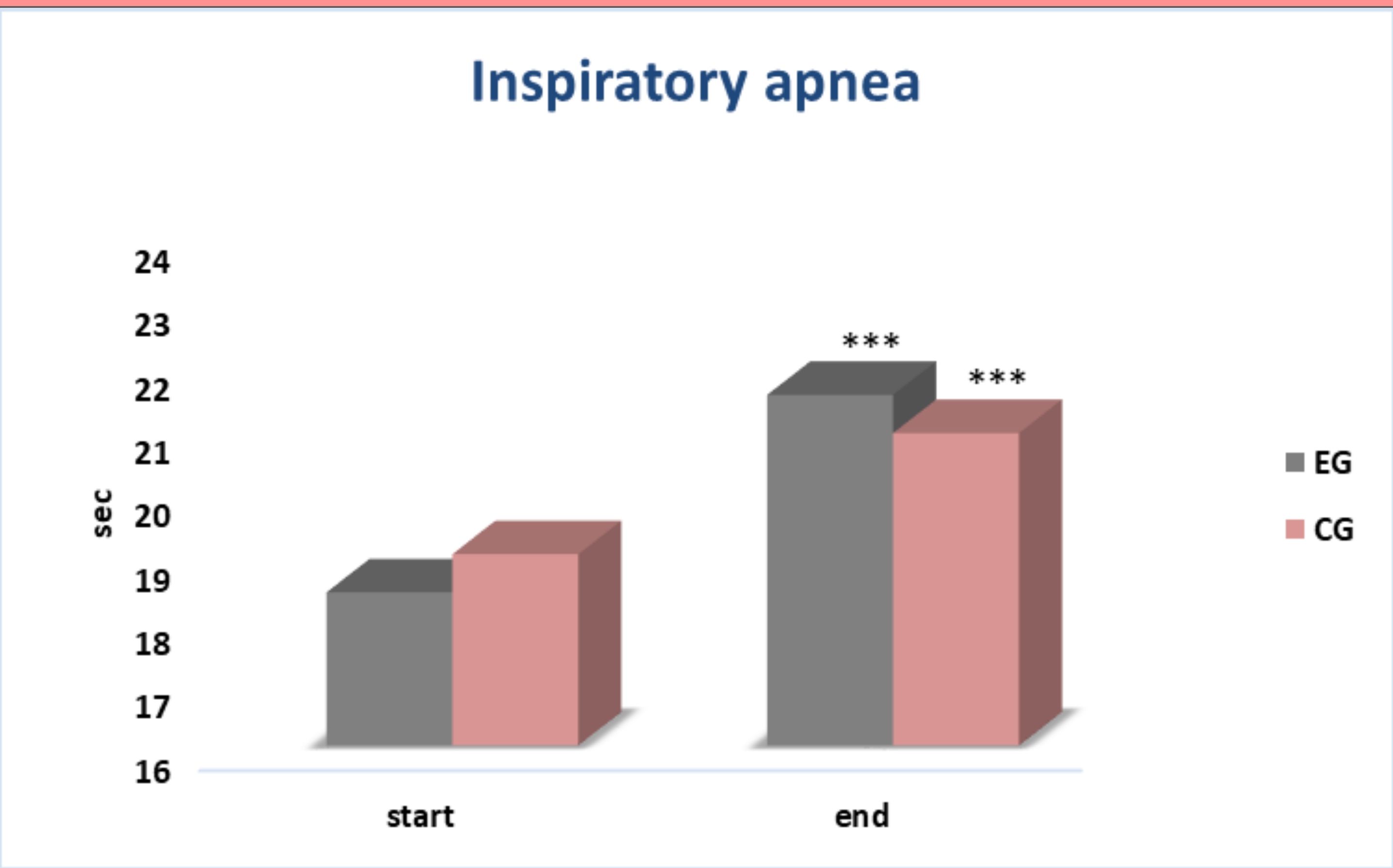


Figure 2. Comparison of initial and final values of the inspiratory apnea score for EG and CG

## RESULTS

After completion of the physiotherapy sessions there is an increase in saturation, in the strength of intercostal muscles and diaphragm according the tests for inspiratory and expiratory apnea and decrease in the respiratory rate at rest in both groups, but in the experimental group the results were better in mean values.

## CONCLUSION

The use of inspiratory training device without resistance in patients with COPD and CRF in a period of exacerbation in clinical stage leads to significant positive effect on studied parameters.

## REFERENCE

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