

DOI: 10.5152/TurkThoracJ.2019.68

[Abstract:0476] MS-098 [Accepted: Oral Presentation] [COPD]

Comparison of the Effectiveness of Salbutamol and Levalbuterol Combinations with Ipratropium Bromide on FEV₁, FVC, and Heart Rate in Stable COPD Patients: A Single-Center, Open-Label Study

Buğra Kerget¹, Sinan Yılmaz², Ferhan Kerget³, Dursun Erol Afşin⁴

¹Department of Pulmonary Diseases, Health Sciences University Erzurum Regional Training and Research Hospital, Erzurum, Turkey

²Department of Public Health, Atatürk University School of Medicine, Erzurum, Turkey

³Clinic of Infection Diseases and Clinical Microbiology, Health Sciences University Erzurum Training Education and Research Hospital, Erzurum, Turkey

⁴Ağrı State Hospital, Ağrı, Turkey

Objectives: Failure to effectively manage acute exacerbations early with bronchodilator therapy is a major cause of mortality and morbidity in chronic obstructive pulmonary disease (COPD). In our study, we aimed to compare the effect of salbutamol + ipratropium bromide, an established treatment for acute exacerbations, with that of the newer agent levalbuterol + ipratropium bromide on FEV₁, FVC, and heart rate (HR) in COPD.

Methods: Forty-five stable COPD patients classified as group D based on the 2017 GOLD guidelines were included in the study. The patients were instructed not to take long-acting b₂ agonist + inhaler corticosteroid for 12 hours and long-acting anticholinergic treatment for 24 hours before baseline assessments. After confirming that the patients had not used short-acting bronchodilator treatment for the past 12 hours, pulmonary function tests (PFT) and electrocardiogram (ECG) were performed. On day 1, PFT and ECG were repeated at 15 and 45 minutes after inhaling short-acting salbutamol + ipratropium bromide (40/200 mcg). The same treatment and assessment procedure was repeated 72 hours later using levalbuterol + ipratropium bromide (40/100 mcg). Changes in FEV₁ and FVC values and HR on ECG were evaluated.

Results: Statistically significant Δ FEV₁ and Δ FVC were observed at 15 and 45 minutes after inhalation compared to baseline values ($p < 0.001$). Comparison of Δ FEV₁ and Δ FVC values at 15 and 45 minutes after levalbuterol + ipratropium bromide and were significantly greater than those observed after salbutamol + ipratropium bromide ($p = 0.017$ and $p = 0.022$, respectively). Similarly, Δ HR at 15 and 45 minutes after treatment was significantly greater with salbutamol + ipratropium bromide ($p = 0.04$).

Conclusion: Levalbuterol + ipratropium bromide caused relatively greater improvements in FEV₁ and FVC with relatively smaller increase in heart rate. Therefore, this combination can be used in place of salbutamol + ipratropium bromide in the treatment of COPD exacerbations.

Keywords: COPD, levalbuterol, salbutamol