Bronchodilator reversibility testing in morbidly obese non-smokers: fluticasone/salmeterol efficacy versus salbutamol bronchodilator

Abstract:

A positive response in reversibility testing is widely used to diagnose patients with airway limitations. However, despite its simple procedure, it doesn't accurately reflect the exact airway irreversibility. This study aimed to investigate the efficacy of a bronchodilation reversibility test using salbutamol and fluticasone/salmeterol combination in obese non-smoker subjects.

The study included patients without a history of obstructive lung disease or bronchodilators. A sub-classification of patients based on body mass index (BMI) was carried out into normal (< 24.9 kg/m2), overweight (25-29.9 kg/m2), and obese (BMI ≥ 30). Spirometry measurements were performed before and after salbutamol or fluticasone/salmeterol administration.

The study included 415 (49.9% male) patients with a mean age of 40.92 ± 10.86 years. Obese subjects showed a high prevalence of restrictive patterns (23.4%), with non-significantly lower spirometric values compared to normal and overweight subjects ($p > 0.05$). The magnitude of bronchodilation, as identified by spirometry, following fluticasone/salmeterol was higher in all participants, with a significant increase in obese subjects with a p-value of 0.013, 0.002, and 0.035 for FEV1, FEV1% predicted, and FEV1/FVC, respectively.

Fluticasone/salmeterol combination increases FEV1, FEV1% of predicted, and FEV1/FVC ratio than the conventional test using salbutamol inhaler, and it can be a potential candidate for assessment of airway obstruction using reversibility test, especially among the obese population.

Keywords Obese, fluticasone/salmeterol, Salbutamol, Bronchodilators, Spirometry, Reversibility test