

Effectiveness of 8 Weeks Combined Therapy with Ipratropium Bromide and Salbutamol Sulfate in the Prevention of Possible Salbutamol Induced Tachyphylaxis in Copd Patients

V. Tsagaraki¹, A. Amfilochiou², K. Antoniou¹ and S. Markantonis-Kyroudis¹

1. University of Athens, School of Pharmacy, Laboratory of Biopharmaceutics-Pharmacokinetics, Panepistimiopolis, Athens

2. Sismanoglio General Hospital, Pulmonology Clinic, Laboratory for Lung Function tests, Marousi, Athens

BACKGROUND

Bronchodilators are prescribed for COPD patients in order to reduce symptoms of the disease. Anticholinergics and b_2 -agonists are the most commonly used drugs of this group. In vitro and clinical evidence support what appears to be a steady reduction in bronchodilatory effect, probably due to tachyphylaxis, following long term administration of b_2 -agonists but not in patients receiving anticholinergics.

AIM

The aim of the present study was to determine whether the combined use of ipratropium bromide (anticholinergic drug) and salbutamol sulfate (b_2 -agonist) for a period of 8 weeks could provide a stable bronchodilatory effect in COPD patients.

METHODS

16 patients gave informed consent to take part in this clinical trial. The duration of therapy was 8 weeks with 2 week wash-out period. The patients inhaled two puffs of the combined aerosol containing ipratropium bromide (20 μ g/puff) and salbutamol sulfate (200 μ g/puff) 4 times a day. The lung function parameters $\Delta FEV_1\%$ of the predicted value, ΔPEF and $\Delta FEV_1/FVC$ were measured with a spirometer, just before and 20', 60', 120', 360' after the inhalation of the combination

of the 1st, 30th, 45th and 60th day of therapy. The results were analysed statistically using multiple measures analysis of variance.

RESULTS

12 patients completed the study. The lung function parameters showed that the bronchodilatory effect remained stable F (4.51=1.654 $p < 0.0175$) 20', 60', 120' and 360' after inhalation of the drug combination of the 1st, 30th, 45th and 60th day of therapy. The difference between the parameters $\Delta FEV_1\%_{pred.}$, ΔPEF and $\Delta FEV_1/FVC$ and their respective baseline values was statistically significant, indicating effectiveness of the combination.

CONCLUSIONS

- 1) The combination of salbutamol sulfate and ipratropium bromide maintained a stable bronchodilatory effect in COPD patients of 8 weeks.
- 2) The bronchodilatory effect not only remained stable throughout the whole study period but also increased using the first 30 days giving a maximum FEV_1 value on day 30.
- 3) The development of tachyphylaxis was not observed, possibly due to the use of ipratropium bromide.