

Intranasal β -agonist in allergic rhinitis

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• THERE is evidence to suggest that intranasal β_2 -agonists may be effective in the treatment of allergic rhinitis. *In vitro* studies have shown β_2 -agonists to be up to 10 000 times more effective at stabilizing mast cells than sodium cromoglycate (1). *In vivo* studies have shown that β -agonists have inhibitory effects on allergen-induced nasal symptoms (2).

Recently, a placebo-controlled study has shown oral salbutamol to be effective in seasonal grass pollen-induced allergic rhinitis (3), reducing symptoms, use of antihistamines, and the increase in serum IgE that occurred during the grass-pollen season.

Twenty adult volunteers with allergic rhinitis (11 men, nine women, aged 29–77 years) were recruited. Inclusion criteria were as follows: symptoms of sneezing, and/or blocked nose and/or runny nose for at least 1 h a day on most days, and a positive skin prick test to one or more common airborne allergens.

Formoterol and placebo were inhaled nasally by the AerolizerTM device (Novartis). This device is intended for inhaled use through the mouth, but can be accommodated to a nostril. The placebo and formoterol 12- μ g dry-powder capsules were identical in appearance.

The study was a double-blind, randomized, placebo-controlled, crossover trial, approved by the local ethics committee.

In the first week, participants attended a screening visit, where they were skin prick tested and instructed on the use of the Aerolizer device. After a 1-week washout period where no rhinitis medication was taken, participants were randomly assigned to treatment with formoterol or placebo. Patients were instructed to clear any nasal secretions and then sniff the contents of one capsule into each nostril twice daily for 7 days. There was then a further 1-week washout period before patients crossed over to the other treatment. During both treatment weeks, patients recorded symptoms of sneezing, blocked nose, and runny nose on a 10-cm visual analog scale twice a day. Researchers and volunteers were blinded to the treatments.

At the end of the trial, patients were questioned about adverse events and compliance, and they gave an overall global efficacy rating for each treatment.

Differences in the mean symptom scores (over each 7-day treatment period) for the placebo and active groups were tested with the Wilcoxon two-sided test for non-normally distributed variables.

Fifteen participants successfully completed the trial. The results of five patients were not used because they either used an incorrect dose of study medication or did not complete the study symptom diary correctly. There was no significant difference in symptom scores or global efficacy between formoterol and placebo.

This study suggests that the intranasal administration of long-acting β -agonists is not effective in the treatment of allergic rhinitis. The reasons for the lack of efficacy

are uncertain. Although it is possible that 1 week was not long enough for the drug to reduce symptoms, this is unlikely, as sodium cromoglycate works within this time frame. As participants had significant nasal obstruction, it is possible that the drug did not reach the intended target of mast cells within the nasal epithelium. While this may have been a factor, intranasal administration of formoterol increased the heart rate of the subjects in this study, indicating that the drug must have reached the nasal epithelium to have been absorbed.

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