Original Article

Pollen challenge study of a phototherapy device for reducing the symptoms of hay fever

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ABSTRACT

Objective: The objective was to investigate the effect of intranasal phototherapy delivered by a phototherapy device (allergy reliever SN-206) on symptoms of hay fever (seasonal rhinitis) due to grass pollen in adults. This registered class IIA medical device had been on sale for 15 months with no adverse effects reported but there had been no assessment of efficacy. Previous research had indicated that phototherapy could alleviate symptoms of allergic rhinitis, but no double-blind, placebo-controlled trails had been done.

Research design and methods: The trial is a double-blind, placebo-controlled grass pollen challenge conducted out of the pollen season, on 101 adult male and female hay fever sufferers. Subjects were assigned to placebo or active groups by stratified random sampling using responses to a baseline questionnaire. All subjects used active or placebo devices three times a day for 14 days before pollen challenge. Subjects were monitored for 2.5 h after challenge.

Main outcome measures: Primary outcome measures were observed severity scores for sneezing, running eyes, running nose, and the amount of eosinophil cationic proteins (ECP) in nasal secretions. Secondary outcome measures were symptom scores by subject report (itching eyes, itching nose, itching throat, itching mouth/palate), and nasal peak inspiratory flow (PIFn) and peak expiratory flow (PEFn).

Results: Significant reductions in severity of symptom scores were found for sneezing, running nose, running eyes and itchy mouth/palate ($p \leq 0.05$). No significant differences were found in the results for itchy eyes, itchy nose, itchy throat, ECPs, PIFn and PEFn. No adverse events occurred.

Conclusions: The results show that the device significantly reduced some hay fever symptoms. The study would have been improved if compliance was monitored electronically and if nasal congestion was monitored by report. The mode of action is unclear. The study does not consider long-term implications of the therapy.