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RHINOLOGY

Bipolar radiofrequency volumetric tissue reduction of the inferior turbinates: evaluation of short-term efficacy in a prospective, randomized, single-blinded, placebo-controlled crossover trial

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Abstract The objective of the study was to assess the short-term efficacy of radiofrequency volumetric tissue reduction (RFVTR) of the inferior turbinates in patients with nasal obstruction caused by turbinate hypertrophy. The study is a prospective, randomized, single-blinded, placebo-controlled, crossover trial. A total of 22 patients (age range 21–72 years; median age 41 years) were randomized into two treatment arms. Using a bipolar radiofrequency system, the first group (VP-group) received RFVTR (verum = V) first (at t1) followed by a placebo treatment (P) 6–8 weeks later (at t2). The PV-group was treated with placebo first at t1 and received RFVTR at t2. Subjects in both groups underwent identical procedures in an office-based setting. Delivery of radiofrequency energy was the only difference between the two groups. The outcome measures assessed were rhinomanometry, physician's evaluation of the degree of hypertrophy of the inferior turbinates and patients' estimation of nasal obstruction. Physician and patient evaluations were documented using a score ranging from 0 = none to 4 = severe. Evaluation was performed 6–8 weeks after every intervention. No intraoperative or postoperative complications occurred. Inferior turbinate hypertrophy improved significantly in both groups after RFVTR was performed (VP-group: $p < 0.001$; PV-group: $p = 0.002$). Nasal obstruction also decreased only after RFVTR (VP-group: $p = 0.004$, PV-group: $p = 0.002$). This study confirmed the safety of bipolar RFVTR as an office-based treatment of nasal obstruction due to inferior turbinate hypertrophy. We could prove that RFVTR is superior to placebo for reduction in turbinate hypertrophy and subjective improvement in nasal obstruction. To our knowledge, this is the first level I study proving the short-term efficacy of a bipolar radiofrequency system.
Level of evidence 1b.

Keywords Nasal obstruction · Inferior turbinates · Radiofrequency volumetric tissue reduction · Placebo-controlled · Crossover

Introduction

Chronic nasal airway obstruction is a widespread complaint frequently caused by hypertrophy of the inferior turbinates. When conservative treatment methods fail, the wide range of surgical options offers alternatives for reduction of the hypertrophic inferior turbinates. An ideal surgical procedure for turbinate volume reduction should entail minimal discomfort or adverse effects and preservation of physiologic function [1]. In their review, Hol and Huizing [2] evaluated 13 surgical techniques that have been described for reduction of inferior turbinate hypertrophy over the past 130 years. Every method contained some inherent weakness associated with lack of efficacy and early or late complications (e.g., pain, bleeding, crust formation, need for nasal packing, long-term relapse, or

Preliminary data of this study was presented at the annual meeting of the American Academy of Otolaryngology-Head Neck Surgery in Boston MA, September 26–29, 2010.

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