Olfactory function after total laryngectomy
Results from an intervention study

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Abstract

After a total laryngectomy the upper and lower airways are disconnected resulting in a wide range of adverse effects e.g. deterioration of the nasal functions in breathing, loss or decrease of the normal sense of smell and taste, as well as loss of the normal voice. Recently a new method, the Nasal Airflow-Inducing Maneuver (NAIM) that can restore the sense of smell in laryngectomized patients has been developed. The aims of this investigation were to describe the olfactory function in laryngectomized patients, to assess the primary intervention results of the NAIM, and to evaluate the long-term results 6 and 12 months later.

The study population consisted of 24 patients, 21 men and 3 women, who had undergone a total laryngectomy. Olfaction acuity was examined with a semi-structured interview, a larynx bypass and the Scandinavian Odor Identification Test (SOIT) along with the Questionnaire on Olfaction, Taste and Appetite (QOTA). Quality of life was measured with the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 and QLQ-H&N35 questionnaires. Water manometer and video documentation were used for real-time biofeedback.

Before treatment, 10 patients (42%) were categorized as smellers (6 with normosmia and 4 with hyposmia), while 14 patients (58%) were nonsmellers i.e. having anosmia according to the SOIT. Thirteen (72%) of the 18 patients with anosmia or hyposmia at baseline improved their sense of smell using the NAIM. In addition, the nonsmellers’ own estimations of their olfaction were significantly higher than pre-treatment. Moreover, the nonsmellers showed an improvement according to the smell item on EORTC QLQ-H&N35. At the 6-month follow-up, 19 (83%) of 23 patients were smellers (7 with normosmia and 12 with hyposmia), compared to 21 (88%) of 24 patients (15 with normosmia and 6 with hyposmia) after 12 months. Consequently, 15 (63%) of all 24 patients could be classified as having normal olfactory capacity 1 year after treatment.

It was concluded that olfactory impairment is common in laryngectomized patients. NAIM is a patient-friendly, inexpensive and effective method for restoring the sense of smell, and the results endure in long-term. The SOIT is suitable for assessment of the olfactory function after laryngectomy, and for evaluation of olfactory treatment. We recommend NAIM to be incorporated into routine rehabilitation program for patients with laryngectomy.

Key words: Olfaction, total laryngectomy, SOIT, NAIM, QOTA, EORTC QLQ-C30, EORTC QLQ-H&N35.

List of publications

I. Screening and rehabilitation of olfaction after total laryngectomy in Swedish patients
Risberg-Berlin B, Ylitalo R, Finizia C

II. Effectiveness of olfactory rehabilitation with the Nasal Airflow-Inducing Maneuver after total laryngectomy
Risberg-Berlin B, Ylitalo R, Finizia C.