ABSTRACT

Nasal endoscopy, nasopharyngoscopy, and transnasal indirect laryngoscopy are common procedures performed in outpatient otolaryngology offices. Patients are typically administered a topical anesthetic prior to this procedure to alleviate discomfort and improve visualization. There is no consensus on which topical anesthetic is most effective in optimizing patient experience during the procedure.

OBJECTIVE: To determine whether there is a difference in the efficacy between atomized 2% tetracaine and 4% lidocaine as a topical anesthetic prior to nasopharyngoscopy.

Study Design: Prospective, randomized, double-blind study.

Methods: A total of 99 patients received oxymetazoline and were randomized to receive either 2% tetracaine or 4% lidocaine prior to nasopharyngoscopy. Immediately following the procedure, participants completed a survey assessing level of discomfort and other adverse symptoms pertaining to the procedure using a 10-point visual analog scale (VAS).

RESULTS: There were no significant differences in VAS scores between the lidocaine and tetracaine groups. There were also no significant differences between genders in overall VAS scores, and in the lidocaine and tetracaine subgroups. Older patients demonstrated significantly less discomfort or a sensation of bad taste overall. In contrast to patients receiving lidocaine, older patients receiving tetracaine experienced significantly less overall pain and discomfort, unpleasant taste, and dyspnea.

CONCLUSION: In patients undergoing transnasal endoscopy, use of either 2% tetracaine or 4% lidocaine has similar effect. Tetracaine may be a better choice in older patients, however.

INTRODUCTION

Topical anesthetics are commonly used to prepare a patient for nasal endoscopy, nasopharyngoscopy, transnasal optical nasal endoscopy, and flexible fiberoptic laryngoscopy. Tetracaine and lidocaine are the two most commonly used topical anesthetics. Tetracaine has a faster onset of action, while lidocaine provides a longer duration of anesthesia. However, the taste of the medication is the factor that resulted in the greatest patient discomfort. In our study, we did not demonstrate any difference between topical 4% lidocaine and 2% tetracaine in terms of efficacy or adverse patient symptoms. This similarity in results between lidocaine and tetracaine confirms previous findings and makes it difficult to determine which agent is the best choice for use in nasal endoscopy.

MATERIALS & METHODS

Institutional Review Board approval for this prospective, randomized, double-blind study was granted by the MedStar Health Research Institute (Hyattsville, MD). Study subjects were recruited between July 2011 and May 2012, and were treated at the MedStar Washington Hospital Center Department of Otolaryngology. Inclusion criteria were: (1) patients who required transnasal endoscopy, (2) ability to speak English and complete the post-procedure survey, (3) ability to provide informed consent, and (4) age older than 18 years. Patients were randomly assigned to either the 2% tetracaine or 4% lidocaine group. Randomization was performed using an IRB approved form.

RESULTS

A total of 99 subjects were enrolled in the study, of whom 50 (50.5%) were randomized to the lidocaine group, and 49 (49.5%) to the tetracaine group. The mean age of subjects was 58.0 ± 16.2, with 52 males (52.5%) and 47 females (47.5%). There were no significant differences in age or gender between groups. Demographic information about each group is summarized in Table 1.

There were no significant differences in VAS scores for all post-procedure questions between the lidocaine and tetracaine groups, as shown in Figure 2. There were also no significant differences in mean VAS scores between gender groups in the overall sample (Figure 3), and in the lidocaine and tetracaine subgroups (Figures 4 & 5).

Statistical Analysis

Subjects were randomized to receive either 4% lidocaine solution (Roseane Laboratories) or 2% tetracaine solution, recreated from powder (Galilab, Inc.). All medications were stored at room temperature in a secured location in the outpatient clinic. Both the patient and the physician were blinded to which medication was administered. All patients had at least two symptoms of rhinopharyngitis via atomizer (approximately 0.18 ml) in the nostril undergoing the endoscopy. The physican then atomized the medicine into three sprays (equivalent to 0.25-0.3 ml) of topical anesthetic in the nostril undergoing the endoscopy. Before starting the procedure, the investigator waited approximately three minutes for the anesthetic to take effect. Topical lubricant was not used during endoscopy, as it could potentially mask worsening of the exam’s view. All endoscopies were performed by the senior author (SC) to maintain consistency of technique.

Immediately after the procedure, patients were asked to complete a questionnaire (Figure 1) to assess their level of discomfort and other side effects pertaining to the procedure. The questionnaire consisted of nine questions and was created using a 10-point visual analog scale (VAS), with 1 representing the least amount of discomfort and 10 representing the most. Participants were required to answer all questions. Overall, there was no significant difference in VAS scores between the lidocaine and tetracaine groups.

CONCLUSION

This study demonstrates that in patients undergoing transnasal fiberoptic laryngoscopy, use of either 2% tetracaine or 4% lidocaine has similar effect. Tetracaine may be a better choice in older patients, however, as it was associated with less discomfort, unpleasant taste, globus sensation, and dyspnea.