The relationship between night time snoring and Cormack and Lehane grading

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Abstract

Introduction: Airway management is one of the greatest concerns of anesthesiologists and difficult intubation, well known as the anesthesiologist’s nightmare, is an event not easy to predict before induction of anesthesia. The aim of this study was to assess the relationship between history of snoring and the Cormack and Lehane grading score.

Materials and methods: In a descriptive-analytical study, 120 candidates for elective surgery were selected and allocated in the two groups [snoring and snoring free groups, respectively). The history of night time snoring was taken from the patient’s wife/husband. After induction of anesthesia, each patient was assessed regarding the Cormack and Lehane grading under direct laryngoscopy.

Results: The difference between the two groups regarding Cormack and Lehane grading system was statistically significant.

Conclusion: The findings of this study demonstrated a relationship between the presence of snoring and increased number of Cormack & Lehane grading score.

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1. Introduction

Airway management is one of the greatest concerns of anesthesiologists and difficult intubation which sometimes associates with difficult mask ventilation should be considered as the anesthesiologist’s nightmare, is an event not easy to predict before induction of anesthesia especially, when one solely relies on one or two predicting factors. A multitude of factors has been proposed for its prediction.1–4 So, it is recommended to consider a number of different items in the preoperative evaluation, including history taking and physical examination.5

Snoring during the night time is an incidental finding for many people and many factors are involved in its occurrence, of which neck mass amount, age and body weight stand out. The oropharynx, the space between the uvula and the epiglottis is the place where the tongue and the uvula meet and their close contact may obstruct the upper airway.5

The aim of this study was to assess the relationship between history of snoring and the Cormack and Lehane grading score during direct laryngoscopy in patients undergoing elective surgical operation under general anesthesia with tracheal intubation.

2. Materials and methods

After Institutional Review Board (IRB) approval and obtainment of patient written informed consents 120 patients were enrolled for study.

In this descriptive-analytical prospective study, the 120 patients who were admitted for elective surgery, were allocated to two groups based on the history of snoring. The first group, the snoring group, consisted of patients who had snoring (according to the inquiry of the patient’s spouse). The second group, the snoring free group, consisted of patients who did not snore (according to the inquiry of the patient’s spouse). Each group had 60 patients aged from 18 to 60 years. Each patient was assessed regarding age, sex, weight, height and also, the history of night time with or without snoring (from the inquiry of patient’s spouse). All these assessments were done by a single anesthesiologist the night before the operation. After induction of anesthesia, the judging anesthesiologist examined each patient regarding the Cormack and Lehane grading under direct laryngoscopy which, according to the classification introduced in 1984, dictated that difficult intubation is classified into grades I–IV.7 The data related to preoperative evaluation were kept confidential from the judging anesthesiologist. After he (or she)
had performed the direct laryngoscopy and intubation he registered the data on a sheet. Also, all the patients were anesthetized in the same manner, regarding the method of anesthesia, monitoring devices used, the drugs used (intravenous midazolam, thiopental, sufentanil and atracurium).

The Cormack and Lehane grading was assessed by the same anesthesiologist; so, the ratings were consistent.

Data entry and analysis were done using SPSS version 11.5. Student t-test, Mann–Whitney U test and Chi-square test were used to analyze data. A \( P < 0.05 \) was considered significant.

3. Results

There was no difference between the two groups regarding age, sex, weight and height, as shown in Table 1. The difference between the two groups regarding Cormack & Lehane grading was statistically significant (2.45 ± 0.67 in the snoring group and 1.52 ± 0.53 in the snoring free group; \( P < 0.001 \)). Also, the results of the scores of the two groups were compared which again demonstrated statistically significant difference (\( p < 0.001 \) for Chi-square test with a degree of freedom =1; Table 2).

4. Discussion

This study demonstrated the relationship between history of night time snoring stated by the spouse of patient and the Cormack & Lehane grading score assessed by direct laryngoscopy in patients undergoing general anesthesia for elective surgery.

In one study, it was demonstrated that snoring and thyromental distance of less than 6 cm were independent predictors for grade 4 mask ventilation. Also, it was shown that limited or severely limited mandibular protrusion, abnormal neck anatomy, sleep apnea, snoring, and body mass index of 30 kg/m² or greater were independent predictors of grade 3 or 4 mask ventilation and difficult intubation.\(^8\) In another study, it was discovered that height, weight, age, male gender, increased Mallampati class, history of snoring, lack of teeth, and growing beard were found to be risk factors for difficult mask ventilation.\(^9\) Also, it was demonstrated that body mass index, age, macroGLOSSIA growing beard, lack of teeth, history of snoring, increased Mallampati grade, and lower thyromental distance are potential difficult mask ventilation risk factors.\(^10\) In another study it was shown that a history of upper airway compromise during sleep (snoring, obstructive apneas) should be sought for detection of difficult intubation and also, snoring could be a cause for mild partial airway obstruction.\(^11\)

The findings of this study demonstrated a relationship between the presence of snoring and increased number of Cormack and Lehane grading score. Since asking about snoring is a very short question that does not need so much time, it is a very useful question that can help anesthesiologists to judge the possibility of difficult intubation. So, asking the patient or patient’s spouse about snoring could be helpful to predict the possibility of increased Cormack and Lehane grading score; so, it could be an index in predicting difficult intubation.

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References