Changes in Obstruction Site in Patients With Obstructive Sleep Apnea According to Sleep Position

So Young Kim, Woo Hyun Lee, Kwang Hyun Kim, Chae-Seo Rhee, Chul Hee Lee, Tae-Bin Won

Department of Otorhinolaryngology-HNS, Seoul National University Hospital, Seoul, Korea

ABSTRACT

Objective: This study aimed to evaluate changes in obstruction site in obstructive sleep apnea (OSA) patients according to sleep position.

Methods: A total of 86 OSA patients underwent sleep endoscopy in the supine and lateral positions. Patients were divided into 2 groups according to non-supine apnea hypopnea index (AHI): those with an AHI of ≥ 10 (lateral obstruction group, n=38) and those with an AHI of <10 (non-lateral obstruction group, n=33).

Results: BMI and lateral oropharyngeal wall(LW) collapsibility in the supine position were lower in mild-to-moderate OSA patients than in severe OSA patients (66.7% versus 90.1%). Lateral oropharyngeal wall collapse remarkably improved in the lateral position. However, LW collapse occurred in most severe OSA patients in the supine position, which persisted in the lateral position in 90.1% of these patients. Obstruction degree in the supine position significantly decreased in 53.5% of the lateral obstruction group patients when patients were changed to the lateral position (P<0.05).

Conclusions: The results of this study suggest that lateral position may improve LW collapse in mild-to-moderate OSA patients, but not in severe OSA patients.

INTRODUCTION

A diversity of individual structures contributed to upper airway obstruction, often in combination. But there was no study anatomically evaluate these mechanisms of sleep obstruction according to position including lateral position preoperatively as far as we searched.

METHODS AND MATERIALS

From 2010 to 2012, 185 consecutive patients had undergone PSG and MISE preoperatively. All subjects underwent MISE under midazolam-sedation. Patients were positioned in the supine and lateral position, with pulse oximetry monitoring. (Figure1)

RESULTS

Among the patients, six sites of obstruction were statistically significantly released in lateral position (p<0.05). Among these patients, LW obstruction was not statistically significantly released from 90.1% in supine position to 90.1% in lateral position (Figure2B) (Table1).

Obstruction in the lateral position was mostly due to LW collapsibility. Mild to moderate OSA subjects showed lower LW collapsibility in supine position, but not in severe OSA patients.

DISCUSSION

This study evaluated the site of obstruction according to sleep position in MISE examination. When sleep position changes from supine to lateral position, SP, TB and LX obstruction statistically significantly improved, especially TB and LX obstruction improved most dramatically. Obstruction in lateral position is mostly due to obstruction at the LW. Therefore, position dependency is mostly determined by lateral wall collapsibility.

REFERENCES


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