Factors Associated with Sleep Quality in Maxillectomy Patients

Na Li, DDS, MDS1/Takafumi Otomaru, DDS, PhD2/Mohamed Moustafa Said, BDS, MPhil1/ Ayako Kanazaki, DDS3/Yesiboli Yeerken, DDS1/Hisashi Taniguchi, DDS, PhD4

Purpose: To investigate factors affecting sleep quality in maxillectomy patients after prosthetic rehabilitation and to determine the association between defect status and sleep quality.

Materials and Methods: A total of 57 patients participated in this study. Sleep quality, general health, and oral health–related quality of life (OHRQoL) were evaluated.

Results: Of the total sample, 89% had poor sleep quality. Early morning awakening and daytime sleepiness were the most common complaints. Conclusion: Defect status and the extent of neck dissection could affect sleep quality in these patients. Improvement of OHRQoL in patients with dentomaxillary prostheses may help improve sleep. Int J Prosthodont 2018;31:223–225. doi: 10.11607/ijp.5615

Most patients with a maxillary surgical defect can be restored to close to normal function and appearance with an obturator prosthesis. Sleep disturbances are a common complaint in patients with head and neck cancer1,2 at all stages of patient care, from diagnosis and treatment to rehabilitation. A recently published study by the present authors demonstrated the extent to which neck dissection and oral health–related quality of life (OHRQoL) could affect sleep quality in long-term head and neck cancer patients.2 Tissue loss and structural alterations resulting from surgical treatment of the maxillary tumors may engender airway narrowing and architectural distortion. However, the causes of sleep disturbance in maxillectomy patients are unclear and have not been well studied.

This study aimed to investigate the possible factors associated with sleep quality in these patients. The null hypothesis was that defect statuses could influence sleep quality in maxillectomy patients.

Materials and Methods

This cross-sectional study was conducted at the clinic of Maxillofacial Prosthetics at Tokyo Medical and Dental University (TMDU) Dental Hospital. The assessment was restricted to maxillectomy patients who wore a prosthesis with no complaint regarding the prosthesis, no complaints ≥ 3 months after the prosthesis delivery, and Japanese language ability. Patients with severe emotional distress were excluded. The recruited convenience sample for the study was comprised of 57 consecutive patients (34 men and 23 women; mean age: 65 years; age range from 26 to 84 years) who were enrolled from May 2015 to April 2016. The study protocol was approved by the Ethics Committee of TMDU (approval no. 1191). All participants provided written informed consent after receiving a written and verbal description of the study.

The patients were examined for defect size and status of dentition. The extent of resection and dentition state was mapped onto a standard palate template for each patient. Information was obtained with the Pittsburgh Sleep Quality Index (PSQI)3 and Epworth Sleepiness Scale (ESS),4 and quality of life was assessed with The Oral Health Impact Profile (OHIP-14) and Short-Form Health Survey (SF-36).

Spearman correlation coefficients and logistic regression analyses were computed to assess independent associations with sleep quality (ie, PSQI global score, ESS score). All statistical analyses were performed using SPSS 16.0 software, with the level of significance set at P < .05.
Results

Significant interactions were found between clinical factors (ie, neck dissection, the extent of hard palate resected) and sleep dysfunction (Table 1). Factors significantly correlated with sleep dysfunction included the extent of neck dissection, the extent of hard palate resection, and the SF-36 mental component summary score. Daytime sleepiness was correlated with a higher OHIP-14 global score (Tables 2 and 3) \(P < .05\).

Discussion

The major finding of this study was that poor sleep quality was associated with two disease-related factors (defect status and the extent of neck dissection) and mental status. This finding suggests that defect status may account for some of the variability in sleep quality and daytime sleepiness.

Defect location (eg, soft palate resection or not) and maxillectomy teeth status had no significant interaction with sleep quality; however, it is interesting...
that a larger maxillary defect (e.g., extent of hard palate resected) could contribute to poor sleep quality in maxillectomy patients with a dentomaxillary prosthesis. This could be because tissue loss, neural injury (impairment of the pharyngeal-related muscles), and structural alteration caused by maxillary resection could lead to an imbalance of force action on the airway, further increasing the risk of a sleep-related breathing disorder.

Patients scheduled to undergo a maxillectomy often ask about the quality of life they should expect following surgery. The results of the present study combined with those of the authors’ previous studies suggest that extensive neck dissection contributes to reduced activity levels, aggravates quality of life, and disrupts sleep.

The present results were consistent with a previous study that revealed associations between sleep quality, oral health status, and quality of life. Nonetheless, the present analyses were cross-sectional, making inferences about the directions of the relationships not possible. Therefore, future studies using longitudinal designs will be useful in determining the relationship between sleep quality and these potential factors in maxillectomy patients.

### Conclusions

A larger maxillary defect, more extensive neck dissection, and lower mental status could contribute to poor sleep quality in maxillectomy patients. Oral health status may also relate to the occurrence of daytime sleepiness.

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### References