



CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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Predictors of Long-Term Side Effects of Sleep Apnea Treatment with Oral Appliances

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INTRODUCTION

Oral appliances for the treatment of obstructive sleep apnea (OSA) reduce upper airway collapse by advancing the mandible (OAm) and associated soft tissues, which acts to increase the caliber of the airway. OAm are well tolerated however their main side effect is dental movement. While dental side effects are inevitable with long-term treatment, the magnitude of changes varies between individuals.

As oral appliance treatment for OSA is a life-long therapy, extended follow-up of patients is required to evaluate side effects. Additionally, factors that may affect the magnitude of side effects need to be determined. The objective of this study is to assess possible predictors of the dental changes associated with long-term OAm treatment.

METHODS

The lateral cephalograms of adults treated for primary snoring or mild to severe OSA with a custom-made titratable OAm for a minimum of 8 years were retrospectively studied. The magnitude of skeletal and dentoalveolar changes was determined, and baseline patient and dental characteristics were evaluated as possible predictors of the observed dental side effects of treatment.

Baseline characteristics assessed included Apnea-Hypopnea Index (AHI), body mass index (BMI), age at the start of treatment, initial Maxillo-Mandibular skeletal relation (ANB), initial mandibular plane angle, number of treatment years and number of teeth present at the start of treatment.

RESULTS

The records of sixty-two patients (baseline age: 49 ± 8.6 years), with an average treatment time of 12.6 years (range: 8-21 years) were included in this study. Cephalometric analysis revealed significant ($p < 0.001$) maxillary incisor retroclination and mandibular incisor proclination over the observation period. The number of treatment years was significantly associated with these variables ($p < 0.001$). Baseline AHI, age and number of teeth were not associated with the magnitude of changes observed. However BMI and ANB angle had a significant effect on upper incisor and lower incisor inclination respectively. A greater BMI and ANB were associated with more upper and lower incisor inclination respectively.

CONCLUSION

This long-term study of OAm side effects found significant dental changes with prolonged OAm use, with treatment duration being the factor most strongly associated with the magnitude of the reported side effects.