Effect of a Titration Polysomnogram on Treatment Success with a Mandibular Repositioning Appliance

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Study Objectives: Mandibular repositioning appliance (MRA) therapy is a treatment option for patients with mild to moderate sleep apnea and for patients who do not tolerate continuous positive airway pressure. Titration of MRAs consists of sequential mandibular advancement guided by symptom improvement. The goal of the study was to determine if patients with an elevated apnea hypopnea index (AHI), despite the use of a subjectively optimized MRA, could achieve better results with additional titration during polysomnography (PSG).

Methods: Patients were enrolled if they had an AHI > 15/h and were referred for MRA therapy. The MRA was advanced until symptoms improved. During the PSG, the technologist monitored the patient’s sleep and increased mandibular protrusion until the AHI was improved.

Results: There was a significant improvement in AHI, minimum oxygen saturation, and total sleep time with the MRA before further advancement. At the final PSG, 65.2% of patients had an AHI ≤ 10 associated with at least a 50% reduction in AHI. The incomplete responders had their appliance further titrated, and this improved the results of MRA therapy by 30.4% to a total success rate of 95.6%.

Conclusions: This study shows that it is possible to improve the results of MRA therapy by further advancing the appliance during a titration PSG in patients with an incomplete response. The titration night improved the results of the usual clinical advancement of the MRA with substantially more patients achieving a successful outcome.

Keywords: Obstructive sleep apnea syndrome, treatment oral appliance, titration, mandibular repositioning appliance

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