

## Influence of nasal resistance on oral appliance treatment outcome in obstructive sleep apnea

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It has been recognized that nasal airway resistance (NAR) is elevated in patients with OSA. However, little is known regarding the influence of nasal resistance on mandibular advancement splint (MAS) treatment outcome in OSA patient. We hypothesized that nasal resistance differs between MAS responders and non responders and therefore may influence treatment outcome. Thirty-eight patients with known OSA underwent polysomnography while wearing a custom-made MAS. Treatment outcome was defined as follows: Responders (R) > or =50% reduction in AHI, and Non responders (NR) as <50% reduction in AHI. NAR was measured using posterior rhinomanometry in both sitting and supine positions, with and without MAS. The mean AHI in 26 responders was significantly reduced from 29.0 +/- 2.9/h to 6.7 +/- 1.2/h;  $P < 0.01$ ). In 12 non responders there was no significant change in AHI (23.9 +/- 3.0/h vs 22.0 +/- 4.3/h;  $P=ns$ ). Baseline NAR was significantly lower in responders in the sitting position compared to non responders (6.5 +/- 0.5 vs 9.4 +/- 1.0 cm H<sub>2</sub>O;  $P < 0.01$ ). There was no significant change in NAR (from baseline) with MAS in either response group while in the sitting position, but in the supine position NAR increased significantly with MAS in the non responder group (11.8 +/- 1.5 vs. 13.8 +/- 1.6 cm H<sub>2</sub>O/L/s;  $P < 0.01$ ). Logistic regression analysis revealed that NAR and BMI were the most important predictive factors for MAS treatment outcome. **These data suggest that higher levels of NAR may negatively impact on treatment outcome with MAS.**

This study suggests the need for an interdisciplinary approach between ENT Surgeons and Sleep Physicians in treating OSA – a condition demonstrating a multifactorial pathophysiology.