European Respiratory Society
Annual Congress 2013

Title: Drug-induced sleep endoscopy predictors for oral appliance treatment outcome

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Body: Introduction: During a drug-induced sleep endoscopy (DISE), a flexible nasopharyngoscope is used to visualize the upper airway (UA) during artificial sleep. The aim of this study was to assess the associations between UA patterns and treatment outcome of mandibular advancement device (MAD) therapy for obstructive sleep apnea (OSA). Methods: Patients underwent baseline polysomnography (PSG), DISE and PSG with MAD after an acclimatization period. The associations between the findings during DISE and treatment outcome in terms of apnea hypopnea index (AHI) reduction were evaluated, by means of a multiple logistic regression. Treatment response was defined as a >50% decrease in AHI. Results: 247 patients underwent DISE before MAD treatment [age 47±9.1y; AHI 20.4±14.8/h; body mass index (BMI) 27.0±3.9 kg/m²]. The results of this study demonstrated a statistically significant association between presence of a palatal collapse during DISE and treatment response with MAD, after correction for BMI, age and gender ($p < 0.05$). Oropharyngeal, tongue base or hypopharyngeal in general were not found to be of a similar predictive value. Conclusion: The results of this study indicate that the presence of a palatal collapse during DISE is predictor of treatment response with MAD in OSAS. These findings may allow for improved patient selection for this specific therapy.