

European Respiratory Society Annual Congress 2012

Abstract Number: 3405

Publication Number: P899

Abstract Group: 4.2. Sleep and Control of Breathing

Keyword 1: Sleep disorders **Keyword 2:** Sleep studies **Keyword 3:** Treatments

Title: Positional obstructive sleep apnea (OSA) and automatic positive airway pressure (APAP) therapy

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Body: Introduction: Recent studies have shown that respiratory events that occur during sleep in supine position have a high prevalence in mild and moderate OSA patients. Objectives: To determine the prevalence of positional OSA in patients with mild to moderate OSA; Compare biometric characteristics and response to APAP between positional and nonpositional OSA patients. Methods: 404 polysomnographies (Embla S7000) were analyzed by an experienced technician. Positional OSA was considered when AHI normalized in the nonsupine position ($AHI \leq 5$ events per hour of sleep). Patients who adapted APAP were evaluated one month after starting treatment. Results: We studied 126 patients, 65% male, with a mean age of 53 ± 11.7 years and a mean RDI of 14.3 ± 6.1 respiratory events/hour. Prevalence of positional OSA was 53.2% in the total group (56.8% in mild patients and 48% in moderate patients). Thirty four out of 66 patients with positional OSA adapted APAP, 22 (64.7%) had no compliance to therapy and 12 (35.3%) had a mean compliance rate of more than 4.5 hours. Concerning APAP parameters, the 95-percentile pressure (P95) was lower in patients with positional OSA ($p=0.003$). Leaks and residual AHI were not different between the two groups. Conclusion: We found a high prevalence of positional OSA in patients with mild to moderate OSA. Most patients with positional OSA were not compliant to therapy with APAP (64.7%). So, despite continuous positive airway pressure is considered the gold standard treatment of OSA, patients who did not have compliance should be encouraged for positional therapy. Keywords: Positional OSA, Polysomnography, APAP.