

# EFFICACY AND TOLERANCE OF COMBINATION THERAPY USING MAS SUPPORTED NASAL PILLOWS

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**Introduction:** Combination therapy provides an intuitively attractive, but largely unexplored means to treat severe OSA. Remarkably few reports have been published. Recently, El-Sohl et al. demonstrated that intolerance to high CPAP pressures can be eliminated by using a MAS to lower the minimally effective pressure (Sleep Breath, online November 2010). Using existing data from the medical dental team, we sought to characterize the efficacy and tolerance of PAP therapy using MAS-supported nasal pillows.

**Methods:** Data were available for ten severe OSA, CPAP-intolerant patients (5Ms and 5Fs: mean age=58.5yrs, BMI=29-36.5) treated between June,2008 and December,2010 initially with a MAS alone suboptimally titrated to 73% maximum jaw protrusion (range 50-95%). The RDI remained >29 events/hr in all but one patient and a decision was made to initiate combination therapy. A metal rod was secured facially to the maxillary component to provide support and positional stability for nasal pillows, added chairside (TAP-PAP chairside, Airway Management Inc., Dallas, Tx). PSG: Lab sleep data were obtained from patients' initial diagnostic and CPAP titration studies, and final PAP titration study with MAS. HST: Home sleep data (Watch-Pat) were obtained prior to delivery and after the last adjustment of MAS, and with combination therapy prior to the final PAP titration. Epworth Scores for EDS were obtained also. CPAP Tolerance: Using a 13-item checklist, patients reported reasons for intolerance to traditional CPAP and to PAP combined with MAS.

**Results:** One patient moved, leaving incomplete data. Two patients had previous UPPPs and were unable to use the nasal pillows due to oral air leakage. PSG: For the remaining 7 patients, the mean AHI was 66 events/hr (range 40.7-108) prior to any treatment, 4.4 events/hr (range 0-20.7) at the initial optimum CPAP of 11.5 cmH<sub>2</sub>O (range 10-16) without MAS, and 2.6 events/hr (range 0-6.1) at the final optimum CPAP of 9.9 cmH<sub>2</sub>O (range 9-15) with MAS. The mean lowest SPO<sub>2</sub> during these three PSGs were 80%, 90.7%, and 90.3%, respectively. HST: The patients' mean pAHI was 54.4 events/hr prior to MAS delivery, 40.2 events/hr with MAS alone, and 10 events/hr with combination therapy. The %sleep for which SPO<sub>2</sub> was < 90% decreased from 20.8% to 11.5% to 3%, respectively. EDS scores decreased from 10.1 to 7.9 to 4.9. CPAP Tolerance: With traditional CPAP, each patient reported 2-6 reasons associated with intolerance. Most commonly reported were 'can't keep in place' (85.7% patients), 'unconsciously remove' (57.1%); 'mask uncomfortable', 'mask leaks', and 'claustrophobia' (42.9% patients each). With combination therapy, only two patients reported a single negative experience: 'unconsciously remove', 'pull of hose applies force to teeth'.

**Conclusions:** Even without lowering the pressure substantially, CPAP tolerance can be improved and severe OSA fully treated using a MAS that physically supports and stabilizes the position of nasal pillows.