An Analysis of Responders to Nasal Expiratory Positive Airway Pressure (EPAP) During Long-term Follow-up

Clifford Massie, PhD

1Chicago Sleep Group of Suburban Lung Associates, Elk Grove Village, IL USA

Introduction
A nasal expiratory positive airway pressure (EPAP) device (Provent Therapy, Ventus Medical) is a safe and effective treatment option for patients with obstructive sleep apnea (OSA). A previously published 12-month long term use study compared outcome measures at week 1 and month 12 in patients who had a positive clinical response to EPAP at the conclusion of a 3 month long sham-controlled randomized study. The analysis below provides additional data showing the progression of outcomes at intermediate time points between week 1 and month 12.

Methods
Patients in the EPAP arm of the randomized study who met adherence and efficacy criteria at month 3 were enrolled in the 12 month follow-up study. Device-on and device-off polysomnograms (PSG) were completed at week 1 and month 3, and a device-on PSG was completed at month 12. Subjective sleepiness was evaluated with the Epworth Sleepiness Scale (ESS) at baseline, and months 3, 6, 9, and 12.

Results
There were 41 patients enrolled in the 12-month follow-up study; 31 had an AHI > 5 at baseline. In these 31 subjects, median AHI was reduced from 17.5 (device-off) to 5.0 (device-on) at week 1, 18.1 (device-off) to 5.2 (device-on) at month 3, and 17.5 (device-off at week 1) to 5.0 (device-on) at month 12. Similarly, the median oxygen desaturation index (ODI) was reduced from 13.7 to 6.1 at week 1, from 11.1 to 5.5 at month 3 and from 13.7 to 8.6 at month 12. The mean ESS at baseline was 10.6 compared to 7.4 at month 3, 6.6 at month 6, 6.2 at month 9 and 5.8 at month 12 (p<0.01 at each time point compared to baseline).

Conclusion
Nasal EPAP reduced the AHI and ODI, and progressively improved daytime sleepiness at multiple time points throughout a 12 month follow-up period.