



POLYSOMNOGRAPHIC CHARACTERIZATION OF MOUTH LEAK EVENTS IN PATIENTS TREATED WITH NASAL CONTINUOUS POSITIVE AIRWAY PRESSURE

Garcia-Asensi A¹, Baltzan MA², Sully J³, Tanzimat G¹, Kassissia I¹, Wolkove N².

OSR Médical Inc¹, Mount Sinai Hospital Center², McGill University, Montreal³.

Background: Adaptation and compliance with night continuous positive airway pressure (nCPAP) is often difficult, leading to inadequate treatment of obstructive sleep apnea (OSA). Mouth breathing has been described in OSA and during titration with nCPAP. It has been associated with reduced nCPAP compliance.

Purpose: We sought to characterize mouth breathing with attention to signal quality, event definition and associated polysomnographic events.

Methods: Eight patients with OSA and nCPAP (range 7 to 15 cm H₂O) were studied with custom polysomnography. Tidal volume was measured with a pneumotachometer. Oral breath signal was generated with a peri-oral pressure transducer as well as a polyvinylidene fluoride (PVDF) film airflow sensor. Mouth breathing during calibration and in sleep shows both a relatively fast frequency 'puffing' waveform and a slow waveform in phase with tidal breathing. Scoring rules were developed. Fast events are defined as those with definite deflections with a frequency of 1 Hz or more. Slow mouth leaks were defined as lower frequency events of less than 1 Hz with concomitant increase of the nCPAP leak signal of at least 3 and at least 4 liters/min.

Results: The fast 'puffing' appeared during stable REM and NREM sleep and with cortical arousals from sleep. Slow events occurred more frequently and were associated with stable sleep, as well as persistent hypopneas in sleep despite nCPAP. Some mouth leak events immediately preceded cortical arousals suggesting a causal relationship. The PVDF sensor demonstrated better signal sensitivity and reliability.

Conclusions: Mouth leak events are observed during stable sleep and arousals from sleep, and may be a source of sleep disruption in patients treated with nCPAP.

Supported by the Mount Sinai Hospital Research Foundation and OSR Médical Inc.

For the American Thoracic Society (ATS), 2007.

OSR Médical inc.

Centre des troubles du sommeil

1361, avenue Beaumont, bureau 202,

Ville Mont-Royal (Québec) H3P 2H7

Tél. : 514 SOMMEIL

514 766-6345

www.osrmedical.com