

Are We Underselling Positive Airway Pressure (PAP) Compliance and Confounding Sleep Research? Large Multi-Center Analysis Shows PAP Compliance Data That Is Much Higher Than Previously Reported

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Introduction

Clinical sleep medicine is guided by published literature that drive treatment. For obstructive sleep apnea (OSA), many such studies are flawed because treatment groups used for analysis have positive airway pressure (PAP) compliance levels lower even than current minimum Medicare requirements for ongoing treatment coverage. Acceptance of poor PAP usage data stems from previous publications on PAP compliance, which have similar flaws and small cohorts (i.e., < 100 subjects). Our contention is that such studies cite compliance thresholds that easily are eclipsed by sleep centers employing effective protocols, and utilization of these data lead to conclusions that hinder proper progression of sleep medicine. We collected data to demonstrate higher PAP compliance can be achieved than what currently is used in such studies.

Methods

- 1580 consecutive patient charts were analyzed from two comprehensive sleep centers, Comprehensive Sleep Medicine Associates (Greater Houston, TX) and Pulmonary and Sleep Associates of Marin (Novato, CA)
- Included were patients who had received a PAP device for OSA 90+ days prior to data analysis and whose compliance could be tracked remotely through AirView.
- All others were excluded.
- Compliance was defined in two ways: “CMS compliance” (4-plus hours of PAP use for 21/30 consecutive days within the first 90 days of PAP initiation) and “all compliance” (4-plus hours of PAP use for 21/30 consecutive days within any 90-day period).

Discussion

Our results show higher PAP compliance than prior studies. Two examples of flawed studies utilizing suboptimal PAP compliance include, “Noninferiority of Functional Outcome in Ambulatory Management of Obstructive Sleep” (Kuna, 2011) and “Lack of Secondary Cardiovascular Morbidity Prevention with PAP” (McEvoy, 2016). Both used PAP treatment groups with average compliance far below the CMS compliance threshold. Higher compliance levels similar to ours are not unreasonable to obtain, but may require comprehensive measures, including aggressive clinical follow-up, concomitant cognitive behavioral therapy for insomnia, collaboration with other health professionals, clinic interventions (e.g., mask fittings, PAP naps), and proper pressure settings.

Results

- 1383 patients met inclusion criteria.
- 964 (70%) met CMS compliance
- 1072 (78%) met all compliance
- 26% (110 patients) of those who did not meet CMS compliance later became compliant (“salvage compliance”)
- Data outlined on Table 1

TABLE 1

	n	Yes	No	%Yes
CMS Compliance	1383	964	419	70%
All Compliance	1383	1072	311	78%
Salvage Compliance	419	110	309	26%

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