



PAP Adherence, Follow-up, and Telehealth during the COVID-19 Pandemic

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INTRODUCTION

- Prior studies have shown that patient adherence to positive airway pressure (PAP) therapy remains variable
- Due to the COVID-19 pandemic, healthcare delivery necessitated an increase in telehealth to practice safe social distancing while maintaining access to care
- The purpose of this study was to compare the rates of clinic follow-up and PAP adherence among patients newly diagnosed with OSA and prescribed PAP therapy based on timing (prior to and after the onset of COVID-19 pandemic) and types of clinic encounter offered (in-person vs. telehealth visits)

METHODS

- Single-center study, retrospective observational chart review
- Eligible patients were divided into pre-COVID group (face-to-face visits only) and COVID group (telehealth visits only)
- Demographic data, BMI, PSG data, PAP usage data, Epworth sleepiness scale (ESS), and insomnia severity index (ISI) obtained
- An appropriate PAP follow-up visit was defined as a clinic appointment occurring within 6 months of the initial visit
- Adequate PAP adherence was defined as usage ≥ 4 hours per night on $\geq 70\%$ of night during a consecutive 30-day period

Figure 1—Criteria for study inclusion and exclusion.

Inclusion Criteria

- Age 18-75 years old
- Underwent an in-lab diagnostic PSG administered by our military sleep center
- New diagnosis of OSA (AHI must be greater than or equal to 5.0 events per hour) made within the defined date range (31 July 2018 to 30 April 2021)
- Naïve to treatment with APAP therapy and not prescribed any other treatments for OSA

Exclusion Criteria

- Age < 18 years old or > 75 years old
- Underwent a split night PSG or HSAT administered by our military sleep center
- Underwent a diagnostic PSG administered by an outside facility
- Prior diagnosis of OSA or a new diagnosis of OSA made outside of the defined date range
- Previous trial of APAP or any other treatments for OSA

AHI: apnea-hypopnea index, HSAT: home sleep apnea test, PSG: polysomnogram, OSA: obstructive sleep apnea, APAP: automatic positive airway pressure

RESULTS

Table 1—Baseline demographics and clinical characteristics by group.

	Pre-COVID (n=117)	COVID (n=117)	p-value
Age (years)	42.2±9.6	40.3±8.6	0.12
Sex			
Male	92 (78.6)	103 (88.0)	0.052
Female	25 (21.3)	14 (12.0)	
Race			0.31
Caucasian	58 (49.6)	43 (36.8)	
African-American	14 (12.0)	20 (17.1)	
American Indian / Alaskan Native	0 (0)	2 (1.7)	
Asian or Pacific Islander	3 (2.6)	2 (1.7)	
Other / Unknown	42 (35.9)	50 (42.7)	
BMI (kg/m ²)	30.1 ± 4.2	30.1 ± 4.5	0.98
Military status			0.17
Active duty	71 (60.7)	90 (76.9)	
Retiree	26 (22.2)	17 (14.5)	
Dependents	20 (17.1)	10 (8.5)	
Baseline AHI (events/hour)	28.5 ± 19.7	27.7 ± 20.0	0.77
OSA severity (events/hour)			0.26
Mild (≥ 5 to < 15)	25 (21.4%)	35 (29.9%)	
Moderate (≥ 15 to < 30)	54 (46.2%)	44 (37.6%)	
Severe (≥ 30)	38 (32.5%)	38 (32.5%)	
ESS	11.7 ± 4.5	12.0 ± 4.7	0.65
ISI	16.9 ± 5.5	16.8 ± 5.4	0.97

Results presented as mean ± SD or number (%). AD: active duty, BMI: body mass index, OSA: obstructive sleep apnea, ESS: Epworth sleepiness scale, ISI: insomnia severity index, SD: standard deviation, AHI: apnea-hypopnea index, COVID: coronavirus disease (COVID-19) pandemic. *Military branches listed include active duty, separated/discharged, and retirees.

Table 2—APAP usage for patients with follow-up within 6 months by group.

	Pre-COVID (n=117) Face-to-face only	COVID (n=117) Telehealth only	p-value
Follow-up within 6 months of initial clinic visit	69 (59.0)	48 (41.0)	0.006*
Adherent to APAP	24 (34.8)	12 (25.0)	0.26
APAP usage over 30 days (days)	16.6 ± 14.3	12.2 ± 14.3	0.023*
APAP usage/day, days used (hours)	4.41 ± 2.2	4.02 ± 2.2	0.37
Days until follow-up visit (days)	92.7 ± 90.4	78.5 ± 55.6	0.30

Results presented as mean ± SD, number (%), or as described. APAP: automatic positive airway pressure, adherent to APAP: APAP usage ≥ 4 hours per night for $\geq 70\%$ of nights, SD: standard deviation, COVID: coronavirus disease (COVID-19) pandemic. *Statistical significance.

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DISCUSSION

- Patients newly diagnosed with OSA and prescribed APAP therapy had higher rates of clinic follow-up within 6 months of diagnosis after initial face-to-face encounters when compared to telehealth encounters
- Pattern of follow-up may be influenced by the following: face-to-face visits may offer a more personalized environment, patients with mild OSA are less likely to follow-up, military lifestyle consist of potential barriers for timely follow-up
- To our knowledge, this the first study reporting the rates of clinic follow-up and PAP adherence in a military sleep center
- Our study findings substantiate the poor PAP adherence rates that are commonly reported across sleep literature
- Telehealth may be more effective when utilized for follow-up visits in established patients
- More studies are needed to gain insights into patients' behaviors related to new OSA diagnosis and PAP therapy so that targeted interventions can be implemented with a goal of improving PAP adherence

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