CPAP: 88±10mmHg; CON 82±13mmHg). BRS was lower in OSA_un and CPAP, relative to CON ($p < 0.05$; OSA_un: 13.1±7.6 ms/mmHg; CPAP: 13.7±9.0 ms/mmHg; control 18.3±11.9 ms/mmHg). Other cardiovascular measures of BPV, HR and HRV in addition to BP showed significant increases in response to HG, but these changes were similar in all 3 groups.

Conclusion: BRS during HG was reduced in both OSA_un and CPAP compared to CON, while HG evoked similar overall changes in BP and HR in all three groups. Although CPAP reduces sympathetic tone measured as Muscle Sympathetic Nerve Activity (MSNA), BRS appears to be unaffected by the intervention. Irreversible changes in the baroreflex network may occur with OSA that are not altered with CPAP usage.

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WHAT ARE PATIENT CHARACTERISTICS, NURSING INTERVENTIONS AND PATIENT OUTCOMES FOR PATIENTS WITH DIFFICULTY ADAPTING TO CPAP?

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Introduction: A sleep nurse clinician was added to our care team to provide situationally responsive educational, behavioral and troubleshooting interventions and case management to patients identified as high risk for untreated SDB. The objective of this study was to describe the patient characteristics, nursing interventions, and impact on CPAP usage among patients referred to the nurse-clinician.

Methods: Descriptive exploratory retrospective chart review was used to identify patient characteristics for all new patients referred; in-depth extraction was conducted for patients who had home CPAP for ≥ 1 month and experienced difficulty using CPAP. We examined: issues using CPAP, frequency and types of nursing contacts, nursing interventions and CPAP usage. Patient characteristics of those with difficulty adapting to CPAP were compared to those referred for assistance to obtain CPAP. Change in objective CPAP usage before vs after sleep nurse case management was determined when possible.

Results: 403 patients were referred, with mean (SD) age: 54.8 y (15.7), 56.1% men, RDI: 45.4 (31.4), 42.4% employed, 16.6% retired, 25% with ≥ 3 co-morbidities plus SDB. Difficulty adapting group (n = 204) had more women (p = 0.033), more employed (p = 0.03), and more insomnia (p = 0.001). CPAP issues included: mask (18%), ENT (14%), constraining beliefs (14%), access to treatment (12%), pressure intolerance (11%), comorbidities (11%), suboptimal usage (7%), insomnia (7%). Nursing contact: 74% subjects had ≤ 4 contacts (range: 1–16), 53% in-person, 25% telephone calls, 22% other. Nursing interventions were: educational (33%), troubleshooting (30%), behavioural (20%), liaison/coordination of care (13%), promoting self-management skills (3%). Preliminary mean CPAP usage (n = 18) improved by 40.0 (112.3) min and by 7.4 (31) % of nights used ≥ 4 hrs (p=NS; data extraction ongoing).

Conclusion: Demographic data identified women and insomnia to be significant characteristics in the difficulty adapting group. This model of care identified 2 types of interventions not previously recognized in typical interventions to promote CPAP adaptation: Liaison/coordination of care and promoting self-management skills. Some patients were able to increase their CPAP usage.

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OUTCOME OF SLEEP-WAKE PATTERN IN OBSTRUCTIVE SLEEP APNEA PATIENTS AFTER POSITIVE AIRWAY PRESSURE THERAPY USING ACTIGRAPHY.

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Introduction: The initial phase of continuous positive airway pressure (CPAP) therapy in patients with obstructive sleep apnea (OSA) may affect sleep parameters and PAP compliance. Actigraphy is a validated method using accelerometer to objectively measure sleep parameters in patients with a range of sleep disorders, including OSA, particularly to follow-up after treatment. We compare sleep parameters from actigraphy, sleep log, sleep diary, Epworth Sleepiness Scale (ESS), Pittsburgh Sleep Quality Index (PSQI), heart rate and blood pressure in OSA patients before and after CPAP therapy for 1 week.

Methods: This pilot study have been prospectively performed at Central Chest Institute of Thailand (CCIT) since June to November 2020. Adult OSA patients, diagnosed by ICSD-3 criteria and achieved optimal or good CPAP pressure titration from split-night polysomnography (PSG), were informed and consent to wear actigraphy before and after CPAP therapy each for 1 week. Clinical and sleep parameters were recorded and analyzed using Wilcoxon matched-pair signed-rank and Mann Whitney U test. P-value < 0.05 was considered to have statistical significance.

Results: All 11 OSA patients participated in this study. Most patients were male (63.6%), hypertension (54.5%) and dyslipidemia (45.4%). Means of age, body mass index (BMI), ESS, PSQI, apnea hypopnea index (AHI), nadir SpO2, and CPAP usage were 45.5 ± 15.9 years, 29.1 ± 5.2 kg/m2, 10.8 ± 3.9, 7.7 ± 2.9, 65.2 ± 37.7 events/h, 82.3 ± 10.8 % and 9.5 ± 3.1 cmH2O, respectively. Comparing before and after 1-week CPAP therapy, an average number of wake bouts ((NWB), 48.4 vs 38 events, p=0.010), ESS (11 vs 9, p=0.035) and PSQI (8 vs 4, p=0.005) were significantly decrease. Additionally, when comparing between poor and good CPAP compliance group, NWB (55.1 vs 36.3 events, p=0.036) and the difference of wake after sleep onset (WASO, 10.5 vs -0.11 min, p=0.035) were significantly decrease.

Conclusion: OSA patients treated with CPAP for 1-week experienced marked improvement in sleepiness, sleep quality and nighttime awakening.

Support (if any):

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OUTCOME OF POSITIVE AIRWAY PRESSURE THERAPY COMBINED WITH TELEMONITORING IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME.

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Introduction: The rate of positive airway pressure (PAP) adherences in obstructive sleep apnea (OSA) patients with PAP therapy has remains persistently low. Telemonitoring is a promising wireless technology to early detect of usage trouble and solve them simultaneously. We compare PAP compliance, Epworth Sleepiness Scale (ESS), Functional Outcomes of Sleep Questionnaire (FOSQ-10), Pittsburgh Sleep Quality Index (PSQI), heart rate and blood pressure in OSA patients with PAP therapy for 12 weeks between telemonitoring and protocol-based groups.
Methods: This is a prospective simple randomization (1:1) study, allocated into the telemonitoring and protocol-based groups, at Central Chest Institute of Thailand since June to November 2020. We recruited adult patients, who underwent split-night polysomnography (PSG), met diagnostic criteria of OSA by ICSD-3 and achieved optimal or good pressure. Demographics data, physiological sleep parameters and differences between groups were analyzed by using descriptive, paired t-test, and ANOVA.
Results: A total of ten OSA patients with PAP therapy were attended. Baseline characteristics between groups were compared, and it is apparent that among telemonitoring and protocol-based groups, most patients were male (60% in each group), the average age of patients were (45.60 ± 9.86 vs 41.60 ± 12.38, p = 0.588) years, body mass index (BMI) (24.66 ± 3.39 vs 30.21 ± 6.13, p = 0.114) km/m2, Epworth Sleepiness Scale (ESS) was (10.00 ± 2.92 vs 9.40 ± 3.57, p = 0.779), apnea-hypopnea index (AHI) of (60.06 ± 31.08 vs 77.98 ± 43.17, p = 0.473) events/hour, and PAP pressure usage (10.20 ± 3.71 vs 10.00 ± 3.67, p = 0.933) cmH2O. There was no significant difference between groups in clinical parameters, sleep questionnaires and PAP compliance of obstructive sleep apnea (OSA) patients with PAP therapy for 12 weeks. However, in telemonitoring group, PSQI compared among baseline, fourth and twelfth week were significantly improved (7.60 ± 2.71 vs 5.00 ± 2.00 vs 4.00 ± 1.00 respectively, p = 0.041).
Conclusion: Using telemonitoring-guided intervention causes significantly improved in Pittsburgh Sleep Quality Index in severe obstructive sleep apnea patients with PAP therapy for 12 weeks. There was no significant difference in PAP compliance between telemonitoring and protocol-based groups.
Support (if any):

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BRAIN STRUCTURE AND BAROREFLEX SENSITIVITY ASSOCIATIONS IN OBSTRUCTIVE SLEEP APNEA WITH AND WITHOUT CPAP

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Introduction: Obstructive sleep apnea (OSA) disrupts multiple aspects of autonomic regulation; it is unclear whether intervention with continuous positive airway pressure (CPAP) can correct such disruptions. One key index of autonomic regulation is baroreflex sensitivity (BRS), an index that indicates heart rate (HR) changes to blood pressure (BP) alterations, and which is a significant measure for evaluating long-term cardiovascular changes induced by OSA. BRS can be assessed from BP and HR changes during an autonomic challenge task such as handgrip (HG). In a cross-sectional study, we assessed BRS during HG in untreated OSA (OSA_un) and CPAP treated OSA (CPAP), together with healthy control (CON) participants to determine if CPAP can recover BRS.
Methods: We collected ECG and continuous beat-by-beat BP from 95 people: 32 newly-diagnosed OSA_un (51.5±13.9years; AHI 21.0±15.3events/hour; 20male); 31 CPAP (49.4±14.0years; 22.4±14.1events/hour in initial diagnosis; 23male); and 32 CON (44.1±13.8years; 10male). We acquired data over 7 mins, during which people performed three 30s HGs (60 s baseline, 90 s recovery, 80% maximum strength). We calculated BRS over the 7 min period using sequence analysis in AcqKnowledge 5.0 BRS, followed by group comparisons using ANOVA. We also analyzed BP, HR, and their variabilities: BPV and HRV (sympathetic-vagal).
Results: Mean arterial BP increases during HG were similar in all groups, although baseline mean arterial BP was higher in OSA_unc and CPAP, relative to CON ($p < 0.05$; OSA_un:mean±std, 90±11mmHg; CPAP: 88±10mmHg; CON 82±13mmHg). BRS was lower in OSA_un and CPAP, relative to CON ($p < 0.05$; OSA_un: 13.1±7.6 ms/mmHg; CPAP: 13.7±9.0 ms/mmHg; control 18.3±11.9 ms/mmHg). Other cardiovascular measures of BPV, HR, and HRV in addition to BP showed significant increases in response to HG, but these changes were similar in all 3 groups.
Conclusion: BRS during HG was reduced in both OSA_un and CPAP compared to CON, while HG evoked similar overall changes in BP and HR in all three groups. Although CPAP reduces sympathetic tone measured as Muscle Sympathetic Nerve Activity (MSNA), BRS appears to be unaffected by the intervention. Irreversible changes in the baroreflex network may occur with OSA that are not altered with CPAP usage.
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INSOMNIA AND RESTLESS LEGS SYNDROME IN PATIENTS WITH UPPER AIRWAY STIMULATION THERAPY

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Introduction: Insomnia and restless legs syndrome (RLS) are common sleep disorders that may impact obstructive sleep apnea (OSA) treatment. To our knowledge, no studies have investigated whether these comorbidities affect upper airway stimulation (UAS) therapy adherence and outcomes. This study aims to explore possible effects of insomnia and RLS in patients using UAS therapy.
Methods: All patients who underwent UAS system implantation for treatment of OSA at our facility were retrospectively studied. Pre- and post-implant histories and data, including diagnostic sleep testing, otolaryngology evaluation, activation results, and treatment evaluation, were analyzed. Patients with no insomnia or RLS were compared to patients with insomnia, RLS, or both. Apnea-hypopnea index (AHI), Epworth Sleepiness Scale (ESS), and adherence were compared pre- and post-treatment for each group.
Results: Sixty-four patients who have undergone UAS implantation at our center have completed post-treatment in-lab titration and evaluation of their UAS system. Insomnia was present in 47%, RLS in 28%, and both insomnia and RLS in 14%. In all groups, the overall AHI during in-lab titration was >50% lower than the pre-treatment AHI (16.1+/-14.3/h vs 32.5+/-13.1/h, $p<0.001$). While the trend in AHI reductions suggested a lower AHI in those without insomnia or RLS, the reduction did not reach statistical significance (no insomnia or RLS 15.7+/-12.9/h, insomnia 16.9+/-16.7/h, RLS 19.0+/-15.5/h, both insomnia and RLS 23.4+/-18.4/h). UAS therapy usage was reduced in patients with RLS (3.9+/-2.6 h/night, $p=0.029$) and in patients with both insomnia and RLS (3.9+/-1.3 h/night, $p=0.046$) compared to patients with neither comorbidity (5.9+/-1.9 h/night). Mean reduction in ESS was similar across groups, averaging from 11+/-5 pre-treatment to 7+/-5 post-treatment ($p<0.001$).