Methods: A post-hoc analysis of data from a prospective, longitudinal study that examined influential factors on CPAP use among CPAP-naive adults with newly diagnosed OSA (AHI ≥ 5 events/hr). Participants were sixty-six CPAP-naive adults (52% male, 91% white) newly diagnosed with OSA (AHI 37.5 ± 18.3 events/hour) from two U.S. clinical sleep centers. The Ways of Coping Questionnaire-revised (WAYS-R) was completed immediately after in-laboratory CPAP titration polysomnography. Objective 1-week and 1-month CPAP use (mean hours/night) was collected. CPAP non-use defined as <4h/night (mean ± SD). Descriptive analyses and stepwise logistic regression analyses separately modeled CPAP non-use (<4hrs/night) at 1-week and 1-month, adjusted for AHI, age, and subjective sleepiness (ESS score).

Results: Active coping was significantly associated with decreased likelihood to be classified as a non-user (<4h/night) at both one week and one month (aOR 0.91 [95% CI 0.84–0.97]; aOR 0.92 [95% CI 0.85–0.97], respectively). Passive coping was significantly associated with an increased likelihood to be classified as a non-user (<4h/night) at one month (aOR 1.09 [95% CI 1.01–1.20]), but not at one week. Higher planful problem solving scores, indicating more frequent use of this coping process, were significantly associated with decreased likelihood to be classified as a non-user (<4h/night) at 1-week and 1-month (aOR 0.72 [95% CI 0.57–0.87]; aOR 0.75 [95% CI 0.61–0.90], respectively). Passive coping was significantly associated with an increased likelihood to be classified as a non-user (<4h/night) at one month (aOR 1.09 [95% CI 1.01–1.20]), but not at one week. Higher planful problem solving scores, indicating more frequent use of this coping process, were significantly associated with decreased likelihood to be classified as a non-user (<4h/night) at 1-week and 1-month (aOR 0.72 [95% CI 0.57–0.87]; aOR 0.75 [95% CI 0.61–0.90], respectively).

Conclusion: Active coping processes and planful problem solving are potential behavioral intervention targets to promote both short-term and longer-term CPAP use among adults with newly diagnosed OSA.

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0526 MONITORING OF LONG TERM COMPLIANCE OF POSITIVE AIRWAY PRESSURE BY A DEDICATED SLEEP TEAM IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA
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Introduction: Positive Airway Pressure (PAP) is an effective treatment for obstructive sleep apnea (OSA). However, long term compliance remains a significant challenge in clinical practice with the national long-term compliance with PAP machine ranging from 30 to 70%. Centers consisting of a dedicated sleep team based approach versus the traditional non-dedicated sleep team physician clinic approach needs to be investigated and is the basis of our research. Our study is over eighteen months and consists of 1,259 patients with an established diagnosis of OSA who were followed for their compliance in a dedicated sleep team approach.

Methods: A prospective study that composed of 1,259 patients with a history of obesity (BMI ≥30kg/m2) and a diagnosis of moderate to severe OSA based on apnea hypopnea index ≥15. After the initiation of PAP therapy the patients were followed by a dedicated sleep team: 1. Patient Coordinator. 2. Sleep Technologist (Certified Polysomnographic Technician—CPSGT) 3. Registered Nurse. 4. Registered Polysomnography Technician (Registered Polysomnographic Technologist—RPSGT) 5. Sleep Medicine Board Certified Physician.

Patients were followed at 1 week and at 3, 6, 12, and 18-month interval. PAP data was downloaded at each visit and analyzed.

Results: Our results showed that 1,007 patients (78%) were compliant with PAP therapy at the 18-month interval. The compliance criteria were defined as a minimum use of 70% over a 12-month period and greater than 4 hours use per night. Our significant results suggest that improved compliance was associated with multi-tiered educational approach.

Conclusion: Many patients with OSA do not initiate or abandon therapy with PAP. Our results show that initial patient experience with PAP plays an important determining factor in regard to long term compliance. Biofeedback and patient-centered education along with professional support in such individuals is needed.

Support (If Any): none.

0527 AVERAGE CPAP-COMPLIANCE AMONG SEVERE OBSTRUCTIVE SLEEP APNEA PATIENTS TREATED IN SLEEP LABORATORY OF MEDICAL CENTRE HUNGARIAN DEFENCE FORCES
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Introduction: Obstructive sleep apnoe syndrome is the most common respiratory disorder during sleep, its first-line treatment is CPAP treatment. CPAP compliance can be measured by downloading the data from the device used by the patient during controls in the sleep laboratory. The aim of this study is to determine the average CPAP compliance of the patients suffering from severe sleep apnoea syndrome visiting our sleep laboratory regularly.

Methods: For this study we examined the compliance results of 3403 patients with severe sleep apnea treated in our sleep laboratory from the 1st of January, 2008 - till the 30th of September, 2017. The diagnosis and the CPAP titration were based on polysomnographic examination, and follow-up examinations were made after two months of the initiation of the usage of the device, then once a year. The compliance data were acquired by downloading the memory card of the patient’s device.

Results: The male - female ratio was 3.67:1, our patients were between 35 to 90 years of age, with severe sleep apnea. The average CPAP usage was 5.02 hours per day (SD 1.94 hours). Female patients used 4.88 hours (SD 1.94 hours), male patients 5.06 hours (SD 1.92) on average. 72% of the patients used more than 4 hours, 34% used more than 6 hours daily.

Conclusion: Adequately diagnosed and titrated patients with proper education and long term care can reach high compliance on average. CPAP compliance data from OSAS patients treated in other sleep laboratories are only sporadically available. Although there are several studies that highlights the benefits of the CPAP treatment in severe OSAS, its dose-response is estimated only recently. The importance of the CPAP compliance in OSAS patients is also prominent in judging the entitlement to drive.

Support (If Any): No support.

0528 IMPACT OF A MASK RESUPPLY PROGRAM ON THERAPY COMPLIANCE: A RETROSPECTIVE ANALYSIS
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Introduction: The long term benefits of PAP therapy can only be achieved with continued usage. Masks play an important role in overall PAP adherence. We hypothesized that a program to promote mask resupply would have a positive effect on PAP adherence.
Methods: De-identified data from a patient billing database were merged with a telemonitoring database to identify patients who met the following criteria: initiation of PAP therapy between 1 July 2014 and 15 November 2016; achievement of US Medicare compliance; therapy management via telemonitoring (AirView™, ResMed). Patients who started a resupply program were propensity matched 1:1 with patients who did not start a resupply program. The resupply program replaced a patient’s mask systems and/or cushions. The study compared PAP usage and rate of therapy termination in the resupply versus control group. These were also analysed by insurance provider (Medicare vs non-Medicare) and rates of resupply (1, 2, 3, 4+ over 1 year). The study protocol was deemed exempt from IRB oversight.

Results: 100,370 patients were included (50,185 in each group; mean age 57 years, 64% male). For the period from day 91 to day 360, mean device usage (95% confidence interval) was 5.6 (5.57–5.61) h/night in the resupply group versus 4.5 (4.47–4.52) h/night in the control group (p<0.0001). Patients in the resupply group were significantly more likely to continue therapy (therapy termination rate at 1 year 11.0% vs 26.6% in the control group; p<0.0001). Similar results were seen irrespective of insurance type for both usage and therapy termination. There was also a trend with higher levels of resupply having higher device usage (6.0 h/night) and lower rates of therapy termination.

Conclusion: This analysis of data from a large group of well-matched patients treated with PAP therapy in routine clinical practice show that a resupply program was associated with significant increases in average daily device usage and reduced therapy drop-out rate irrespective of insurance type with a dose response to amount of resupply.

Support (If Any): This study was funded by ResMed.

0529 FULL FACEMASK INDUCED UPPER AIRWAY OBSTRUCTION DURING PAP TITRATIONS: A COMMON PHENOMENON HINDERING PAP TREATMENT WHEN UNRECOGNIZED AND INDICATION FOR COMBINATION THERAPY WITH ORAL APPLIANCE MANDIBULAR STABILIZATION.

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Introduction: Mandibular retraction from Full-face masks (FFM) is not commonly considered when treating OSA. Analysis of PAP titrations of our sleep lab shows patients using FFM’s for PAP therapy often require higher pressure than when utilizing a nasal mask. When patients are switched post-titration from a nasal mask to a FFM’s (typically to address oral pressure leakage), it is assumed that pressure requirements are the same irrespective of mask type. We have demonstrated numerous cases in which switching to a full facemask during the PAP titration study has resulted in higher PAP pressure requirements.

Methods: We identified OSA patients in whom in-laboratory PAP titration studies were performed where nasal mask were used initially and provided resolution of OSA (AHI <5), but in whom oral leak was observed and unresolved by the addition of a chinstrap. The patients were switched to FFM’s during the titration study.

Results: 10 cases were identified where after switching to FFM’s the patients required PAP pressures 4+ cm H2O higher than what was observed as therapeutic with nasal masks. In some cases, the patient was switched back to a nasal mask with re-identification of lower PAP pressure requirements than with the FFM.

Conclusion: Our observations have shown that it is common for patients to require markedly higher PAP pressures with FFM’s compared with nasal masks. This increased pressure requirement is best explained by mandibular retraction that occurs with the full facemask due to applied strap pressure needed to create a mask seal around the chin when the chin becomes relaxed during sleep. Previous reports by Simmons describe improvements in PAP treatment with mandibular stabilization to prohibit mandibular retraction and the associated increase in airway obstruction. We will present more extensive statistical aspects of the occurrence on this phenomena and descriptive examples for teaching purposes, so others can become more sensitive to this phenomenon and recognize indications of combination therapy with mandibular stabilizing dental appliances.

Support (If Any): N/A.

0530 EFFECT OF CHANGING FROM NASAL INTERFACE TO FULL FACE MASK ON CPAP EFFICACY AT VARIOUS PRESSURE SETTINGS.

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Introduction: Full face masks (FFM) can have higher pressure requirements compared to nasal interfaces (NI). This study was conducted to evaluate effect of changing from NI to FFM on CPAP efficacy at various settings.

Methods: Retrospective review.

Results: Data from 3 females and 7 males (mean age 65 years, mean BMI 31.5 kg/m2, mean AHI on diagnostic study 39 events per hour) was reviewed. Two patients were on fixed pressures of 11 and 14 cm respectively. For these patients, while on NI, mean residual AHI was 3 events per hour and mean 95th percentile leak was 34 LPM, whereas while on FFM, mean residual AHI was 22 events per hour and mean 95th percentile leak was 28 LPM. Two patients were on auto settings with maximum pressure cappped at 13 and 15 cm respectively. For these patients, while on NI, the 95th percentile pressures were 10 and 12 cm respectively, mean residual AHI was 3 events per hour, and mean 95th percentile leak was 28 LPM, whereas while on FFM, the 95th percentile pressures were 13 and 14 cm respectively, mean residual AHI was 17 events per hour, and mean 95th percentile leak was 17 LPM. Six patients were on auto settings with maximum pressure set at 20 cm. For these patients, while on NI, mean 95th percentile pressure was 12 cm, mean residual AHI was 3 events per hour, and mean 95th percentile leak was 19 LPM, whereas while on FFM, mean 95th percentile pressure was 18 cm, mean residual AHI was 4 events per hour, and mean 95th percentile leak was 14 LPM.

Conclusion: Pressures delivered tended to be higher (when on auto pressures) and AHI tended to be higher in the setting of a lower leak when using FFM as compared to NI. Maximum increase in AHI after switching from NI to FFM was seen in patients whose machines were at settings which prevented them from adequately increasing the delivered pressure to compensate for this change.

Support (If Any): None.

0531 COMPLIANCE WITH POSITIVE AIRWAY PRESSURE THERAPY AFTER SWITCHING FROM CPAP TO BILEVEL FOR NON-COMPLIANT OSA PATIENTS: A BIG DATA ANALYSIS

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