Conclusion: In OSA patients with a moderately collapsible upper airway, the combination of atomoxetine plus trazodone yielded clinically meaningful improvements in measures of sleep disordered breathing and oxygenation while atomoxetine plus lemborexant produced smaller effects.
Support (If Any): This study was supported by Apnimed.

0755

COMPARISON OF CLINICAL PATHWAYS FOR UPPER AIRWAY STIMULATION MANAGEMENT: IN-LABORATORY TITRATION POLYSOMNOGRAPHY VERSUS HOME-BASED EFFICACY SLEEP TESTING

David Kent[1], Phillip Huyett[2], Phoebe Yu[2], Asim Roy[3], Reena Mehra[4], Jessica Rundo[4], Stephanie Stahl[5], Shalini Manchanda[5]
Vanderbilt University Medical Center [1] Massachusetts Eye and Ear [2] Ohio Sleep Medicine Institute [3] Cleveland Clinic [4] Indiana University [5]

Introduction: Upper airway stimulation (UAS) therapy is an alternative treatment option for select CPAP-intolerant patients with obstructive sleep apnea. Current standard-of-care management uses in-laboratory polysomnography for titration of UAS stimulation amplitude (tPSG) after 3 months of patient self-titration at home. This home monitoring study was designed to evaluate whether tPSG or efficacy home sleep test (eHST) with tPSG by exception for eHST non-responders would have non-inferior apnea-hypopnea index (AHI) outcomes.
Methods: Enrolled patients underwent UAS implantation as part of regular clinical care and were randomized at the activation visit 1:1 between tPSG or eHST for the 3-month post-activation visit. If eHST results were suboptimal (AHI > 15 events/h or < 50% reduction from baseline AHI) patients underwent tPSG titration at 5 months. Both groups had 2-night eHSTs at 6 months post-activation. The primary endpoint was 6-month AHI equivalence between arms (defined as ± 15 events/h). Secondary endpoints were equivalence of Epworth Sleepiness Score (ESS; ± 2), oxygen desaturation index (ODI; ± 15 events/h), and nightly UAS device usage (± 0.5 h).
Results: The study randomized 60 patients from August 2020 through September 2021, who were primarily middle aged (57 ± 10 years), male (67%), Caucasian (98%), and overweight (BMI 29 ± 3 kg/m2), with severe OSA (AHI 35 ± 16). Eleven patients withdrew from the study early. As of December 2021, 41 and 36 patients have completed 3- and 6-month follow-up visits, respectively. Six-month visit AHI, ESS, ODI, and device usage data between arms is currently blinded and is expected to be complete by Q2 2021 prior to SLEEP 2022.
Conclusion: If the study demonstrates equivalent 6-month AHI, ESS, ODI, and usage outcomes, the use of eHST to ascertain therapy efficacy prior to tPSG could be a non-inferior alternative management option to tPSG.
Support (If Any): Sponsored by Inspire Medical Systems, Inc.

0756

PRECLINICAL PHARMACOLOGY OF SOLRIAMFETOL: POTENTIAL MECHANISMS FOR WAKE PROMOTION

Hema Gursahani[1], Thierry Jolas[2], Maryse Martin[2], Sandrine Cotier[2], Sandrine Hughes[3], Wayne Macfadden[1]
Jazz Pharmaceuticals [1] Eurofins CEREP [2] E-Phy-Science [3]

Introduction: Solriamfetol is a wake-promoting agent (WPA) approved for the treatment of excessive daytime sleepiness associated with narcolepsy and obstructive sleep apnea. The wake-promoting mechanism of solriamfetol may result from dopamine and norepinephrine reuptake inhibition. Preclinical pharmacology studies were conducted to further elucidate the molecular targets activated by solriamfetol and compare them to that of known WPAs and traditional stimulants.
Methods: In vitro binding and functional studies were conducted in a panel of cell lines or membrane preparations expressing transmembrane receptors and monoamine transporters to measure the activity of solriamfetol, comparator WPAs, and traditional stimulants. Electrophysiology studies were conducted in slice preparations from mouse ventral tegmental area (VTA). Studies to measure locomotor activity and wake-promoting effects were conducted in mice.
Results: In vitro functional studies showed agonist activity of solriamfetol at human, mouse, and rat TAAR1 receptors. hTAAR1 EC50 values (10–16 µM) were within the clinically observed therapeutic solriamfetol plasma concentration range and overlapped with the observed DAT/NET inhibitory potencies of solriamfetol in vitro. TAAR1 agonist activity was unique to solriamfetol; neither the WPA modafinil nor the DAT/NET inhibitor bupropion had TAAR1 agonist activity. Solriamfetol (1–10 µM) dose-dependently inhibited the firing frequency of dopaminergic VTA neurons in mouse brain slices, similar to known TAAR1 agonists; however, these effects were inhibited by a D2 antagonist, suggesting a DAT-mediated effect. Unlike traditional stimulants, solriamfetol did not increase locomotor activity in naive mice, but inhibited the increase in locomotor activity in DAT knockout mice.
Conclusion: Preclinical studies have identified agonist activity at the TAAR1 receptor and, possibly, lower potency agonist activity at 5-HT1A receptors as potential pharmacological targets for solriamfetol, in addition to its activity as a DAT/NET inhibitor. Given the current understanding of TAAR1 agonists as modulators of monoamine transmission with potential wake-promoting effects in multiple preclinical species, agonist activity at the hTAAR1 receptor may represent an additional pharmacological target underlying the wake-promoting effects for solriamfetol, in addition to its DNRI activity.
Support (If Any): Jazz Pharmaceuticals

0757

CLUSTER ANALYSIS FOR IDENTIFYING GOOD CPAP ADHERENCE USING THE PSG PARAMETERS AND PATIENT CHARACTERISTICS

Eriko Hamada[1], Motoo Yamauchi[1], Yukio Fujita[2], Azusa Ikegami[3], Ryutaro Shirahama[4], Toshio Takaoka[5], Tsuguo Nishijima[6], Masanori Yoshikawa[1], Shigeo Muro[1]
Department of Respiratory Medicine, Nara Medical University [1] Department of Respiratory Medicine, Nara Medical Universtiy [2] Sleep Center, Kuwamizu Hospital, Kumamoto, Japan [3] RESM Shinyokohama Respiratory&Sleep Medical Care Clinic [4] Department of Respiratory Medicine, Kagoshima Takaoka Hospital [5] Division of Behavioral Sleep Medicine, Iwate Medical University School of Medicine [6]

Introduction: CPAP is the standard treatment for obstructive sleep apnea (OSA). One of the important clinical issues to be solved is poor CPAP adherence. A growing body of studies has identified predictive factors for CPAP adherence including AHI, BMI, age, gender, symptoms, etc. When our sleep physicians prescribe CPAP, we would consider these known factors in multiple ways. One may want to know factors' combinations rather than each factor. In this case, cluster analysis might be useful since it is a

powerful data-mining tool to sort various factors into meaningful groups. Recently, cluster analysis has been adopted for research of sleep breathing disorders. However, no one has adopted to predict CPAP adherence. In this study, we aimed to explore the usefulness of cluster analysis to predict CPAP adherence using the diagnostic PSG parameters and patients' characteristics.

Methods: The study design was a retrospective observational multi-center study including 5 certified sleep centers in Japan. For 2 years from 2017, 1133 patients who were diagnosed with OSA with in-lab PSG and newly initiated CPAP therapy were enrolled. We performed cluster analysis using the K-means clustering. Variables for clustering were determined by several sleep physicians among PSG parameters and patients' characteristics. We assessed CPAP adherence for 90 days and 365 days after CPAP initiation in each created cluster. We adopted CMS criteria for good CPAP adherence, which is, more than four hours of use on 70% of nights.

Results: Cluster analysis classified 5 clusters. A significant difference in CPAP adherence for 90 days and 365 days was seen among 5 clusters with a test of independence (p=0.001, p=0.005, respectively). The cluster presenting moderate obese, very high AHI and ODI, and apnea predominant indicated good adherence, whereas the cluster presenting morbid obese, very high AHI and ODI, sustained severe hypoxia, younger age, and daytime sleepiness indicated poor adherence according to the post-hoc Chi-square test.

Conclusion: Cluster analysis successfully distinguished the different CPAP adherence and identified a combination of OSA patients' profiles. Thus, cluster analysis would be a useful tool for predicting long-term CPAP adherence.

Support (If Any):

0758

BEHAVIORAL DETERMINANTS OF PAP USE IN VETERANS WITH COMISA: RESULTS OF A RANDOMIZED TRIAL

Bronson Barretto[1], Jennifer Martin[2], Constance Fung[2], Joseph Dzierzewski[3], Carl Stepnowsky[4], Yeonsu Song[5], Michelle Zeidler[2], Monica Kelly[2], Daniel Enamorado[1], Jody Schnurrenberger[6], Karen Josephson[1], Michael Mitchell[1], Cathy Alessi[2]

VA Greater Los Angeles Healthcare System [1] VA Greater Los Angeles Healthcare System and University of California, Los Angeles [2] Virginia Commonwealth University [3] VA San Diego Healthcare System and University of California, San Diego [4] University of California, Los Angeles [5] University of Southern California [6]

Introduction: Nonadherence to positive airway pressure (PAP) therapy is common in comorbid insomnia and obstructive sleep apnea (COMISA). We previously reported a novel behavioral treatment for COMISA which improves both PAP adherence and sleep. Our current goal was to assess whether improvements in PAP self-efficacy, knowledge, and decisional balance (targets of treatment) are associated with improvements in PAP use and sleep quality. We also collected participants' perceptions of benefits and challenges of PAP during intervention.

Methods: 125 veterans (96% men, 39% non-Hispanic white, 24% Black, 17% Hispanic/Latino) with COMISA were randomized to a 5-week intervention integrating behavioral insomnia therapy with a PAP adherence program versus general sleep education (control). Objective PAP use data and Pittsburgh Sleep Quality Index (PSQI) were collected over 6 months. Three behavior change subscales (PAP Self-Efficacy [PAP-SE], Decisional Balance Index [DBI], Knowledge [KNOW]) were administered at 6-months. Weekly self-report of participant-perceived benefits and challenges of PAP use were collected among intervention participants. Subscale scores, PAP use and PSQI were compared between intervention and control, and associations were tested. Change in mean number of benefits and challenges of PAP use were also tested (all analyses intent-to-treat).

Results: At 6-months, compared to controls, intervention participants had higher scores on all three subscales: PAP-SE (4.1 intervention versus 3.5 control, respectively), DBI (8.3, 0.9) and KNOW (10.5, 9.6, all p<.05). Intervention participants had more PAP use and lower (better) PSQI scores at 6-months (all p<.05). In the total sample, PAP use and PSQI correlated with PAP-SE (r=.52 PAP use, r=-.27 PSQI, respectively), DBI (r=.49, -.35) and KNOW (r=.43, -.21; all p<.05). Among intervention participants, perceived benefits of PAP increased over time (4.3 at week 2, 5.8 at week 4, respectively), and challenges decreased (3.7, 2.3; all p<.05).

Conclusion: Behavioral treatment for COMISA improves behavioral determinants of PAP use, which is associated with improvements in PAP use and sleep quality. In addition, with treatment, perceived benefits of PAP increase and challenges decrease. These findings suggest improvements in self-efficacy, knowledge and perceived benefits of PAP are important mechanisms through which behavioral interventions improve PAP use in older adults with COMISA.

Support (If Any): VAHSRD (IIR12–353-Alessi, RCSA20-191-Martin) and NIH (NHLBI K24HL143055-Martin, NIA K23AG049955-Dzierzewski)

0759

A REAL WORLD STUDY ASSESSING PATIENT SATISFACTION IN THE PRIMARY CARE SETTING IN RELATION TO EXCESSIVE DAYTIME SLEEPINESS IN PARTICIPANTS WITH OBSTRUCTIVE SLEEP APNEA

Sairam Parthasarathy[1], Danielle Hyman[2], James Doherty[3], Ragy Saad[3], Jerry Zhang[3], Susan Morris[2], Lev Eldemir[4], Benjamin Fox[5], Mai Ka Ying Vang[4], Jessica Schroeder[5], Nell Marshall[5], Gregory Parks[3]

University of Arizona [1] Formerly Jazz Pharmaceuticals [2] Jazz Pharmaceuticals [3] Formerly Evidation Health [4] Evidation Health [5]

Introduction: Excessive daytime sleepiness (EDS) is common in obstructive sleep apnea (OSA), despite positive airway pressure (PAP) therapy. These analyses evaluated EDS prevalence and its relationship with satisfaction with care in participants with OSA receiving OSA care in a primary care setting.

Methods: US residents (aged ≥18 years, self-reported physician OSA diagnosis [1/1/2015–3/31/2020]) completed a survey in Evidation Health's Achievement app assessing Epworth Sleepiness Scale (ESS), specialties of healthcare providers (HCPs) treating OSA, PAP usage, and satisfaction with HCPs and overall OSA care. Self-reported PAP use was categorized: nonuse, nonadherent (<4 h/night, <5 d/wk), intermediate (4–6 h/night, ≥5 d/wk), or highly-adherent (≥6 h/night, ≥5 d/wk) (PAP-adherent=intermediate+highly-adherent groups). Linear modeling assessed the relationship between PAP use and ESS score; logistic regression assessed impacts of PAP adherence and EDS on satisfaction with care. P-values are uncontrolled for multiplicity.

Results: Participants (N=2289) were 50.3% female; 82.5% White; 44.8±11.1 years old (mean±SD); with BMI 35.4±8.7 kg/m2; 42.5% had EDS (ESS>10). OSA was primarily managed by sleep specialists (43.5%), general practitioners (GPs) (42.5% [28.9% saw a GP only; 13.6% saw a GP and a specialist/pulmonologist]), and/or pulmonologists (18.0%). Among participants with OSA