Intensive Outpatient Program for persistent symptoms associated with mTBI. Sleep assessment included overnight polysomnography and self-report assessments of sleep quality, somatic and mood symptoms. OSA severity was determined by apnea-hypopnea index (negative: <5, mild: 5-15, moderate/severe: ≥15). Group differences were assessed using analysis of covariance and pairwise least squares regression, controlling for age and body mass index, and corrected for multiple comparisons.

Results: Analyses included 574 ADSMs, mostly male (99%), with a mean age of 39.7. The majority (n=288; 50.2%) were OSA negative (OSA-neg); a third had mild OSA (m-OSA) (n=216; 38%); and a tenth were diagnosed with moderate/severe OSA (mod/s-OSA) (n=70; 12%). Mod/s-OSA patients had increased arousal index ($p<0.01$), hypoxia time ($p<0.001$), reduced total sleep time ($p<0.01$) and sleep efficiency ($p<0.001$) compared to m-OSA and OSA-neg patients. M-OSA patients had an increased arousal index compared to OSA-neg patients ($p<0.01$). Patient groups did not significantly differ on subjective measures of sleep (i.e., quality, sleepiness), post-concussive, or behavioral health symptoms (anxiety, depression, post-traumatic stress symptoms, alcohol misuse).

Conclusion: In our sample of treatment-seeking ADSMs, nearly half presented with OSA according to cut-scores derived for AHI, greater than that expected in the general population. As reported in civilian populations, mod/s-OSA patients demonstrated worse objective sleep measures compared to m-OSA and OSA-neg patients, yet in our sample their self-reported symptom severity did not differ. These findings suggest a low threshold for OSA screening is needed in the symptomatic mTBI population and that multiple factors other than OSA likely contribute to perceived sleep disturbances and neurobehavioral symptoms.

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0626

NOCTURNAL PULSE EVENT FREQUENCY IN MULTIPLE SYSTEM ATROPHY: AN EXPLORATORY PILOT STUDY

Stuart McCarter[1], Elizabeth Coon[1], Eduardo Benarroch[1], Erik St. Louis[1]
Mayo Clinic [1]

Introduction: Risk of sudden death in multiple system atrophy (SuD-MSA) is greatest during sleep. Mechanisms underlying SuD-MSA may involve impaired brainstem arousal and cardiovascular responses to hypercapnia in MSA patients. We hypothesized that nocturnal arousal-related tachycardia events are reduced in MSA patients. We analyzed whether nocturnal pulse event frequency was altered in patients with MSA compared to patients with sleep disordered breathing without MSA utilizing portable overnight oximetry.

Methods: We retrospectively analyzed 46 probable MSA and 46 age-sex matched patients with sleep disordered breathing (SDB) without MSA, excluding patients receiving cardioactive medications. Nocturnal oxyhemoglobin desaturation indices (ODI) and pulse event indices (PEI) were automatically recorded for all patients using portable overnight oximetry. We calculated a PEI/ODI ratio to determine the relationship between probable breathing-related arousals and pulse rate change. Cardiovagal function was assessed by heart rate to deep breathing and Valsalva ratio in patients with MSA and Composite Autonomic Severity Score was assigned. Group comparisons were made with non-parametric tests. Multivariable regression explored relationships between oximetry variables and clinical characteristics.

Results: Average age at overnight oximetry was 62.9 ± 7.7 years. Total respiratory events between MSA patients compared with OSA controls were similar (95.0 ± 118.6 vs 73.5± 54.2, $p=0.61$). Total pulse events were lower in MSA than OSA controls without MSA (25.5±44.2 vs 111.6±120.2, $p<0.001$), as were pulse events per hour (3.1 ± 5.3 vs. 12.8 ± 10.8, $p<0.001$). The ratio of PEI/ODI was lower in MSA than OSA patients without MSA ($p<0.001$). Twelve (26%) MSA patients had zero pulse rate events, while all OSA patients without MSA had at least 1 pulse rate event ($p<0.001$). The number of pulse events was not associated with severity of cardiovagal dysfunction on daytime autonomic function testing.

Conclusion: Patients with MSA have fewer pulse rate events when compared with SDB patients without MSA, despite similar overall respiratory event frequency. The number of pulse events was not explained by severity of daytime autonomic dysfunction in those with MSA. Whether nocturnal pulse event response to sleep disordered breathing is a marker of disease severity or plays a role in SuD-MSA deserves further study.

Support (If Any):

0627

THE EFFECTS OF INSOMNIA THERAPY ON DEPRESSION, ANXIETY, AND DAILY FUNCTIONING IN INDIVIDUALS WITH INSOMNIA AND MILD COGNITIVE IMPAIRMENT

Allison Morehouse[1], Kathleen O'Hora[1], Beatriz Hernandez[1], Laura Lazzeroni[1], Jamie Zeitzer[1], Leah Friedman[1], Donn Posner[1], Clete Kushida[1], Jerome Yesavage[1], Andrea Goldstein-Piekarski[1]
Department of Psychiatry and Behavioral Sciences, Stanford University [1]

Introduction: Insomnia is common in older adults with and without mild cognitive impairment (MCI), and is associated with worse neuropsychiatric symptoms (NPS) and impaired daily functioning. Evidence suggests treating insomnia may resolve some of these difficulties in cognitively normal adults. However, little is known about the effects of improving sleep on these domains in older adults with MCI.

Methods: We examined whether MCI status moderates the improvements of a behavioral intervention for insomnia on NPS and daily functioning. 125 adults (mean age=69.18, 34.4% male) with insomnia (38 with MCI as determined by a Montreal Cognitive Assessment; MoCA score < 26) completed the Insomnia Severity Index (ISI), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), and five domains (activity, vigilance, intimacy, productivity, and social) of the Functional Outcomes of Sleep Questionnaire (FOSQ) before (BL) and after (ETX) completing either the behavioral, cognitive, or combined components of Cognitive Behavioral Therapy for Insomnia (CBT-I). Linear mixed effects models were used to determine the effect of MCI status, time, and an MCI-by-time interaction on NPS and daily functioning while covarying for sex.

Results: Treatment improved BDI ($p<0.001$), BAI ($p<0.001$), ISI ($p<0.001$), productivity ($p<0.008$), activity ($p<0.001$), social functioning ($p=0.014$), and FOSQ total score ($p=0.015$) regardless of MCI status at ETX compared to BL. Treatment did not significantly improve vigilance ($p=0.154$) or intimacy ($p=0.439$). There was a significant MCI-by-time interaction for the FOSQ social domain ($p=0.041$) with MCI participants showing greater improvements in social functioning compared to non-MCI participants. There were no other significant MCI-by-time interactions.

Conclusion: These findings suggest insomnia therapy can similarly improve aspects of sleep-related daily functioning, insomnia severity, and NPS regardless of MCI. However, insomnia therapy may be more beneficial in improving social functioning for individuals with MCI.

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0628

EPILEPSY CONTROL AND NIGHT SLEEP DURATION AND AFTERNOON SIESTA

Mohammed Al-Abri[1], Abdullah Al-Asmi[1]
Sultan Qaboos University [1]

Introduction: The relationship between sleep and epilepsy has long been recognized but understanding the association between seizure control and sleep duration is not well explored. The study aims to describe the sleep habits in people with epilepsy (PwE) and explore the association between sleep habits, particularly afternoon napping and level of seizure control and anti-epileptic drugs (AEDs).
Methods: this is a cross-sectional study of adult epilepsy patients attending neurology clinic. Sleep parameters are measured using actigraphy for one week and home sleep apnea testing to rule out obstructive sleep apnea (OSA).
Results: total of 250 PwE were screened and 129 patients (male & female) completed the study with mean age of 29.75 ± 9.18 years and mean body mass index (BMI) of 27.12 kg/m2. There was significant association between night sleep duration and time of wake up and number of AEDs (adjusted R2=0.026, P=0.03 & P=0.04 respectively). There is also significant association between number of seizures per night and afternoon napping (adjusted R2=0.043, P=0.05). Other sleep parameters did not reveal any significant association with level of epilepsy control neither with number of AEDs (P>0.05).
Conclusion: The study described that PwE with uncontrolled epilepsy on multiple AEDs are practicing sleep habits that involved longer afternoon napping and shorter sleep duration.
Support (If Any): Sultan Qaboos University

0629

METABOLIC SYNDROME IN NARCOLEPTIC CHILDREN

Min Zhang[1], Marine Thieux[2], Aurore Guyon3, Laura Arvis4, Carine Villanueva4, Jian-Sheng Lin[1], Patricia Franco[2]
Integrative Physiology of the Brain Arousal Systems, CRNL, INSERM U1028, CNRS UMR5292, University of Lyon [11] [1]Integrative Physiology of the Brain Arousal Systems, CRNL, INSERM U1028, CNRS UMR5292; [2]Pediatric Sleep Unit, Woman Mother Child Hospital, Civil Hospices of Lyon & National Reference Center for Narcolepsy, University of Lyon [12] Pediatric Sleep Unit, Woman Mother Child Hospital, Civil Hospices of Lyon & National Reference Center for Narcolepsy, University of Lyon [13] Pediatric endocrinology Unit, Hôpital Femme Mère Enfant, Hospices Civils de Lyon, Université Claude Bernard Lyon [14]

Introduction: Narcolepsy is a disabling neurological disorder characterized primarily by excessive daytime sleepiness (EDS), cataplexy, hypnagogic hallucinations, sleep paralysis, rapid eye movement (REM) behavior disorder (RBD) and disturbed nocturnal sleep. Over 50% of children with narcolepsy are obese. Metabolic syndrome (MetS), a constellation of disturbances associated with obesity, is increasingly seen in narcolepsy. A higher prevalence of MetS was revealed both in adults and children with narcolepsy. The objective of the present study was to compare clinical and sleep characteristics in children with narcolepsy with different components of MetS to clarify the mechanisms in MetS in these children.
Methods: This retrospective study included 58 children with narcolepsy. Data on blood pressure, High density lipoprotein (HDL) cholesterol, triglyceride, glucose, insulin and anthropometry (height and weight) were collected. MetS was defined when ≥3 of the following criteria were met: (1) Body mass index (BMI) ≥IOTF-30, (2) Blood pressure ≥90th percentile, (3) HDL-C ≤0.4 g/L, (4) Triglycerides ≥1.3 g/L, (5) homeostasis model assessment of insulin resistance (HOMA-IR) ≥75th percentile. Then, clinical and sleep characteristics were compared in groups with different MetS components.
Results: A total of 17 % of children with narcolepsy had MetS including 79% with high HOMA, 26% with high BMI, 24% with low HDL cholesterol and 12% with high triglycerides, but no patient with high blood pressure. 58% of the patients without obesity had at least 1, 2 or ≥3 MetS risk factors (78%, 15% and 6%, respectively). 55% of them were overweight. In children with narcolepsy with at least two MetS risk factors, there was a higher proportion of night eating, a lower percentage of N3 sleep, a higher arousal index, a shorter mean sleep latency and more sleep onset REM periods (SOREMPs) compared to patients with fewer MetS risk factors.
Conclusion: Altered sleep architecture and eating behavior are closely associated with risk factors of MetS in children with narcolepsy, even without obesity. We recommend to evaluate MetS risk in all children with narcolepsy to prevent complications such as type 2 diabetes and cardiovascular outcomes.
Support (If Any):

0630

A 4-WEEK SLEEP INTERVENTION THAT ADVANCES AND STABILIZES SLEEP TIMING LEADS TO MEANINGFUL IMPROVEMENTS IN PAIN AND PHYSICAL FUNCTION IN PEOPLE WITH FIBROMYALGIA

Helen Burgess[1], Sonal Bahl[1], Katelyn Wilensky[1], Emily Spence[1], Riley Jouppi[1], Muneer Rizvydeen[1], Cathy Goldstein[1], David Williams[1], Myra Kim[1], John Burns[2]
University of Michigan [1] Rush University Medical Center [2]

Introduction: Fibromyalgia is characterized by chronic widespread pain, mood and sleep disturbance, and affects over 20 million Americans. Pharmacological treatments (antidepressants, antiepileptics, opioids) often have small treatment effects and adverse side-effects. Exercise therapy requires significant patient motivation, and psychotherapy requires specialized personnel. Here we report on a randomized clinical trial in which we tested a 4-week sleep-wake scheduling intervention with either a dim or bright daily 1 hour morning light treatment.
Methods: Fifty-four adults (52 females, 18-78 years) meeting ACR 2011 diagnostic criteria for fibromyalgia completed a 5-week protocol. In the first week each participant slept at home, ad lib, on their usual sleep schedule. Thereafter, they followed a fixed sleep schedule and a daily 1-hour morning light treatment (randomized to dim or bright light). The sleep schedule advanced each participant's individual sleep-wake timing by no more than 1 hour, and focused on stabilizing sleep timing. Participants were monitored with wrist actigraphy throughout the study. Outcomes were assessed at baseline, 2 weeks and 4 weeks after the intervention.
Results: The 4-week intervention resulted in an average 36-minute advance in participants' sleep timing in both groups (ps<0.001). Night-to-night variability in sleep timing also significantly decreased in both groups (ps<0.01). Pain and physical function improved equally in both groups (Fibromyalgia Impact Questionnaire-Revised, PROMIS Pain intensity, PROMIS