Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Universitätsmedizin Berlin, Interdisciplinary Center of Sleep Medicine, Berlin, Germany

Introduction: Excessive daytime sleepiness (EDS), a common symptom among patients with obstructive sleep apnea (OSA), is associated with cardiovascular disease. However, evidence for its association with coronary plaque burden among OSA patients is limited. We therefore aim to examine the association of EDS with coronary plaque burden, and the modification effects of age, gender, obesity among OSA patients.
Materials and Methods: Consecutive patients with OSA, who underwent coronary CT angiography within 6 months of sleep study between September 2015 and August 2019, were included. EDS was defined as Epworth sleepiness scale≥11. Multivariable linear regression models were used to evaluate the associations of EDS with volume of total plaque, as well as its subcomponents (non-calcified plaque (NCP), low density non-calcified plaque (LD NCP), and calcified plaque (CP)).
Results: In the overall cohort, there was no evidence for significant associations between EDS and total plaque volume or any subcomponents (all $P > 0.05$). However, tests for the interaction between EDS and obesity in relation to coronary plaque volume were significant. We found that the associations between EDS and total plaque volume, NCP volume, and LD NCP volume were significant in the obese patients ($P = 0.015, 0.018, 0.021$, respectively), but not in the non-obese patients ($P = 0.740, 0.637, 0.672$, respectively) after adjusting for confounders. In addition, there was a significant association between EDS and LD NCP volume in the younger ($\beta \pm SE$, 36.067 ± 17.619 mm3) but not older participants (5.154 ± 10.414 mm3; P for interaction = 0.354).
Conclusions: EDS was associated with coronary plaque burden in obese but not in non-obese patients with OSA, suggesting that obesity may moderate the association between EDS and plaque burden in patients with OSA
Acknowledgements: The authors gratefully thank the staff at Sleep Medical Center, Beijing Anzhen Hospital, China, for scoring the sleep studies according to the updated AASM scoring guidelines and the staff at department of Radiology, Beijing Anzhen Hospital, China, for Coronary CTA images scan. In addition, we also thank VoxelCloud Technology Co., Ltd., Suzhou, China for providing the plaque analysis software program.

EEG BIOMARKERS OF INSUFFICIENT SLEEP IN CHRONIC OPIOID USERS

L. Emami [1], M. Younes [2], F. Chung [3], D. Wang [4]. [1] *Tehran University of Medical Sciences, Amiralam Hospital, Otolaryngology Research Center, Sleep, Tehran, Iran, Islamic Republic of;* [2] *Misericordia Health Centre, University of Manitoba, Sleep Disorders Centre, Winnipeg, Canada;* [3] *University of Toronto, Toronto Western Hospital, Anesthesiology and pain medicine, ResMed Research Chair of Anesthesiology, Sleep, and Periop Medicine at University Health Network, Toronto, Canada;* [4] *Woolcock Institute and Royal Prince Alfred Hospital, University of Sydney, Sleep Medicine, Sydney, Australia*

Introduction: Chronic pain patients on long-term opioids frequently complain of excessive daytime sleepiness[1]. These complaints are non-specific and correlate poorly with conventional objective measures. Sleep disorders are prevalent among these patients[2]. Several EEG biomarkers that are sensitive to insufficient sleep have recently become available. These are derived from the odds ratio product (ORP), which is a highly validated continuous measure of sleep depth.[3-5] The markers of interest[5] are ORP during stage wake (ORP_W), agreement between sleep depth in right and left hemispheres (R/L ICC), and decrease in sleep depth across the night as sleep pressure decreases (DORP). We wished to determine if these indices provide objective evidence of the patients' symptom of excessive sleepiness.
Materials and Methods: 167 chronic pain patients on a stable dose of opioid for ≥3 months, who were referred from five university affiliated pain clinics, and underwent in-lab polysomnography (PSG). This was a planned post-hoc analysis of a prospective cohort study conducted at five pain clinics. [6]
PSGs were scored for the three indices of insufficient sleep. Sleepiness was assessed by the Epworth Sleepiness Scale (ESS).
Results: ESS had a statistically significant negative correlation with right/Left ORP difference (P-value = 0.016) and Wake ORP (P-value =0.003) but not with DORP (P-value= 0.363). Opioid dose had a marginally significant correlation with R/L ORP ICC (P-value= 0.031) and ORP_W (P-value= 0.024), but not with DORP (correlation coefficient= 0.08, P-value=0.312).
Conclusions: The negative association between ESS with Wake ORP and R/L correlation provides objective evidence for the presence of sleepiness. This study also shows that these abnormalities are opioid dose-dependent.
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POST-COVID SYNDROME: OBJECTIVE SLEEP-WAKE CHANGES IN PATIENTS WITH FATIGUE AND EXCESSIVE DAYTIME SLEEPINESS

L.G. Fregolente [1,2], L. Diem [1], J.D. Warncke [1], S. Jung [1], M. Funke-Chambour [3], R. Hoepner [1], C.L.A. Bassetti [1]. [1] *Inselspital, Bern University Hospital and University of Bern, Department of Neurology, Bern, Switzerland;* [2] *Graduate School for Health Sciences, University of Bern, Bern, Switzerland;* [3] *Inselspital, Bern University Hospital and University of Bern, Department of Pneumology, Bern, Switzerland*

Introduction: Post-COVID syndrome affects approximately 10% of patents with SARS-CoV2 infection. It is characterized by multiple symptoms including headache, anosmia, dyspnoea, fatigue and sleep-wake disturbances. In the absence of systematic data in the literature, the aim of the study was the assessment of objective sleep-wake changes in post-COVID patients reporting fatigue and excessive daytime sleepiness (EDS).
Materials and Methods:A consecutive series of patients with Post-COVID-19 and fatigue and EDS seen at our institution between March and October 2021 were included. A standardized assessment included questionnaires (n=14, e.g. Fatigue Severity Scale (FSS), Epworth Sleepiness Scale (ESS), and Beck Depression Index (BDI)), conventional video-polysomnography (PSG, n=14), vigilance tests (multiple sleep latency test (MSLT), n=7; maintenance of wakefulness test (MWT), n = 5), actigraphy (n= 13) and laboratory tests. Differences between groups were analyzed using the Mann-Whitney U and Fischer Exact tests.
Results: Patients were mostly female (9/14, 69%), young (mean age 45 years, 95% Confidence Interval (95%CI 37-53) and had a history of mild acute SARS-CoV2 infection (11/13, 85%). All but one (13/14, 93%) had a positive PCR test. The mean scores were 6.0 for the FSS, 14.0 (13/14 > 10) for the ESS, and 19.2 (11/14 >12) for BDI 19.2. The mean apnoea-hypopnea index (AHI) was 18/h (6/14 > 20/h, 2/14 > 30/h). PSG documented a mean sleep efficiency of 84.5% (5/14 < 85%), a mean sleep duration of 384 min and a mean arousal index of 31.9/h. The mean percentage of N1, N2, N3 and REM (%) was 14%, 34%, 21% and 15%, respectively (3/14 had NREM < 15% and 6/14 a REM < 15%). The mean sleep latencies were 12.0 min (1/7 < 5) on MSLT and 24.6 min (1/5 <14) on MWT. There were no sleep onset REM episodes. No patient had a high PLMS-index (>15/h) or REM-sleep behaviour disorder (RBD).
Conclusions: Preliminary findings of this ongoing study (actigraphy data was not analyzed so-far) show that in post-covid patients reporting fatigue and EDS only a minority has abnormal vigilance (MSLT, MWT) tests and/or clear-cut sleep disorders. Conversely, a mild acute covid infection, female gender, depression, moderate SDB, and sleep architecture changes are

frequently found. More data are needed to confirm these observations and to identify predictors of objective and treatment-relevant sleep-wake changes in post-covid patients.
Acknowledgements: Nothing to disclose related to this work.

PREDICTION OF RISK FACTORS OF SLEEPINESS AT THE WHEEL AMONG PATIENTS WITH OBSTRUCTIVE SLEEP APNEA

A. Sabil [1,2], R. Bignard [3], C. Gervès-Pinquié [2], P. Philip [4], M. Le Vaillant [2], W. Trzepizur [3], N. Meslier [3], F. Gagnadoux [3]. [1] *Cloud Sleep Lab, Clinical research, Paris 12, France;* [2] *Pays de la Loire Respiratory Health Research Institute, Beaucouzé, France;* [3] *University Hospital of Angers, Department of Respiratory and Sleep Medicine, Angers, France;* [4] *University Hospital of Bordeaux, Bordeaux, France*

Objective: Our objective was to determine risk factors for drowsy driving in patients with obstructive sleep apnea (OSA) and to identify factors independently associated with drowsy driving accidents.
Patients and methods: This retrospective study was conducted on 843 patients with OSA from the French Pays de la Loire cohort sleep database. Each patient completed questionnaires including anthropometric data, medical history, professional status, and data on alcohol and tobacco use. Questionnaires on the Epworth Sleepiness Scale (ESS) and on sleep quality were administered. Regarding driving, data were collected on the occurrence of a "near miss" or a drowsiness-related accident in the past year, as well as on the distance driven per year. The primary dependent variable of interest was self-reported drowsiness while driving.
Results: A multivariate regression analysis showed that self-reported drowsiness while driving (n=298) was independently associated with younger age (p=0.02), male gender (p=0.009) marked nocturnal hypoxemia (p=0.006), lower BMI (p=0.03), absence of cardiovascular disease (p=0.022), managerial or high degree jobs (p=0.003) and insomnia (p=0.03). Only experience of drowsy driving (OR 12.18, [6.38-23.25]) and an ESS $\geq$11 (OR 4.75 [2.73-8.27]) were independently associated with self-reported traffic accidents (n=30) or "near misses" (n=137).
Conclusion: In newly diagnosed OSA patients, the risk of traffic accidents appears to be multifactorial, and its assessment should include multiple parameters such as self-reported drowsiness while driving, occurrence of drowsiness-related accidents, anthropometry, occupational status, and insomnia complaints. Thus, it is possible to assess this risk and advise patients at the first diagnostic examination for OSA without waiting for the results of the sleep study.
Acknowledgements: We thank the IRSR, promoter of the cohorts from which the data for this study were obtained and the sleep technicians in Sleep Medicine of Angers University Hospital.

SLEEP DISORDERS AND MORTALITY: A PROSPECTIVE STUDY IN THE CANADIAN LONGITUDINAL STUDY ON AGING

S. Zolfaghari [1,2], A. Pelletier [2,3], R.B. Postuma [3,4]. [1] *McGill University, Integrated Program in Neuroscience, Montreal, Canada;* [2] *McGill University Health Centre, Montreal, Canada;* [3] *Centre for Advanced Research in Sleep Medicine, Hôpital du Sacré-Coeur de Montréal, Montreal, Canada;* [4] *McGill University, Department of Neurology and Neurosurgery, Montreal, Canada*

Introduction: Sleep problems are among the most common complaints in the aging population. In addition to impairing quality of life, sleep problems may lead to physical and psychological complications, such as cardiovascular problems, diabetes, cognitive decline, depression, anxiety, and fatigue. However, it is unclear whether the risk of mortality is also increased in sleep disorders. This study aimed to compare mortality in different sleep disorders in a large population-based prospective study.
Materials and Methods: Participants completed a questionnaire at baseline (collected during 2011-2015) for overall sleep satisfaction, hours of daily sleep, sleep-onset and sleep-maintenance insomnia disorder (according to DSM V criteria), daytime somnolence disorder (according to DSM V criteria), REM sleep behavior disorder (RBD, according to RBD1Q), restless leg syndrome (RLS, according to 4-item minimal IRLSSG criteria) and obstructive sleep apnea (OSA, according to STOP questionnaire). The vital status of participants up to July 2019 was released after the second wave of data collection. Baseline sleep problems of participants who were died (cases) were compared to those who survived (controls). For each case, five age/sex-matched controls were selected. Binary logistic regression was used to estimate the association between sleep symptoms and mortality, adjusting for age, sex, marital status, province, education, alcohol consumption, smoking, caffeine, and body mass index. In a complementary model, we added anxiety and depression to the model.
Results: Among 30,097 participants at baseline, 974 deaths were reported in 2019 (60.7% male, age=72.31 years, SD=9.4). 4,870 age/sex-matched controls were selected (60.7% male, age=72.10 years, SD=9.3). On the initial analysis, mortality cases reported more baseline sleep-maintenance insomnia (12.1% vs. 8.0%, Adjusted OR [95%CI]=1.62 [1.15,2.29]), daytime somnolence (2.4% vs. 1.1%, AOR=2.70 [1.34,5.44]), and higher possible RLS (16.4% vs. 12.4%, AOR=1.50 [1.09,2.05]). They were also more likely to screen positive for possible OSA (33.8% vs. 24.2%, AOR=1.32 [1.07,1.64]). Long duration sleep ($\geq$10 hours per day) was also associated with increased mortality (3.4% vs. 1.9%, AOR=1.83 [1.04,3.24]). Other sleep symptoms/disorders, such as sleep-onset insomnia (7.3% vs. 4.3%, AOR=1.54 [1.00,2.37]), possible RBD (5.3% vs. 5.1%, AOR=1.02 [0.62,1.69]), and sleep dissatisfaction (26.5% vs. 22.6%, AOR=1.14 [0.93,1.41]) were not different among these groups. However, because of a large discrepancy in sleep disorder prevalence in mood disorders, along with the increased risk of mortality in those with mood disorders, we added anxiety and depression to the adjustment model. After adding these variables, all differences attenuated and became statistically nonsignificant, with the exception of daytime somnolence disorder and OSA. After stratifying by sex, we found a mortality relationship only among women, with no link between sleep problems in men and mortality.
Conclusions: We confirm a relationship between numerous sleep disorders and mortality (i.e., sleep-maintenance insomnia, daytime somnolence, possible RLS, possible OSA, and long sleep duration). However, this effect appears to be primarily related to co-existing anxiety and depression.
Acknowledgments: We would like to thank CLSA for providing the data and thank Webster Foundation for funding this project.

TACKLING LONG COVID USING INTERNATIONAL HOST GENETICS RESEARCH COLLABORATION

V. Lammi [1], H.M. Ollila [1,2,3]. Long COVID Host Genetics Initiative[1] *University of Helsinki, Institute of Molecular Medicine Finland, Helsinki, Finland;* [2] *Massachusetts General Hospital, Center for Genomic Medicine, Boston, United States;* [3] *Stanford University, Department of Genetics, Palo Alto, United States*

Introduction: While the world is still fighting the spread and casualties of the acute disease caused by SARS-CoV-2 virus, there is also a need for mitigating the long-term effects of this pandemic. WHO has estimated that 10-20% of coronavirus disease 2019 (COVID-19) patients suffer from lingering symptoms, termed Long COVID (Post-acute sequelae of COVID-19, PASC / Post COVID-19 conditions). Various symptoms have been reported in virtually all organs, with debilitating fatigue, exercise intolerance, cognitive dysfunction, anxiety, depression, loss of smell or taste, and sleep difficulties among the most prevalent.
Several pathophysiological mechanisms ranging from prolonged infection to tissue damage and autoimmunity have been proposed. Studying human genetic variants predisposing to Long COVID can provide hypothesis-free information on the underlying biology.
Materials and methods: We have established an open world-wide collaboration for elucidating genetic risk factors for Long COVID. Currently, the Long COVID Host Genetics Initiative comprises 46 studies across 23 countries with genotype data combined to questionnaire information of symptoms and/or electronic health record (EHR) data of diagnoses.
Using questionnaire data, we have defined Long COVID as 'any symptoms that cannot be explained by alternative diagnoses, or impact on everyday functioning, 3 months after the onset of COVID'. With EHR data, we have used specific diagnosis codes for Post COVID-19 conditions (ICD-10: U09) or Coronavirus as the cause of other diseases (B97.2).
In the first data freeze, we have data from 11 studies from 8 countries, with