Advanced Trainee Presentations

O042

IMPACT OF SUPINE REM AHI ON DIAGNOSTIC SLEEP STUDIES FOR OSA

Callum J[1,3], *Stranks L[2], Melehan K[1,3], Yee B[1,2,3]*

[1]Royal Prince Alfred Hospital, Camperdown, Australia, [2]Woolcock Institute, Glebe, Australia, [3]University of Sydney, Camperdown, Australia

Introduction: A conventional belief is that REM exacerbates positional OSA (POSA). Subsequently, PSGs often report on presence of supine REM with the presumption that without supine REM, the AHI may be underestimated. This study explores the impact of REM upon obstructive respiratory events in sleep when supine.
Methods: From 1/1/2019 through 31/12/2020 PSGs for OSA diagnosis performed using Sleepware G3 were reviewed. A subgroup analysis was conducted within POSA patients defined as 1) total AHI>10/hour and non-supine AHI<10/hr, 2) supine AHI>2x non-supine AHI and 3) at least 15min of supine and non-supine sleep. Data was analysed with Pearson's Chi Squared Test using Stata 16.1.
Results: Supine REM occurred in 97% of the 467 PSG's. The supine REM AHI was 32.1(95%CI 29.1–35.2), compared to supine NREM AHI of 36.6(33.5–39.6), non-supine REM AHI of 21.3(18.8–23.9) and non-supine NREM AHI of 19.9(17.3–22.5).
Among 109 POSA patients the supine REM AHI was 31.7(26.1–37.4) compared to 28.9(24.8–32.9) in supine NREM, 9.5(6.1–12.9) in non-supine REM and 3.5(3.0–4.0) in non-supine NREM.
The average duration of obstructive respiratory events was 27.3 seconds (26.2–28.5) in REM compared to 23.5 seconds (22.8–24.2) in NREM. This statistically significant difference did not persist in POSA patients.
Discussion: The results do not support an additive effect of REM beyond supine positioning among patients with POSA, however there is evidence that REM lengthens respiratory events, which may reduce AHI. In the POSA subgroup analysis, there was an increased AHI in REM compared to NREM only in the non-supine position.

O043

"MY FITBIT TELLS ME I DON'T SLEEP" – VALIDATION OF A CONSUMER-WEARABLE DEVICE (FITBIT CHARGE 3TM) USING GOLD STANDARD IN-LABORATORY POLYSOMNOGRAPHY TO ASSESS SLEEP IN ADULTS PRESENTING FOR MEDICAL EVALUATION IN A SLEEP LABORATORY

Munsif M[1,2,3], *Jumabhoy R[4], Rangamuwa K[3], Mansfield D[1,4], Drummond S[4], Dabscheck E[1,3,4]*

[1]Sleep Disorders Unit, Epworth Hospital, Melbourne, Australia, [2]Department of Respiratory and Sleep Medicine, Austin Health, Melbourne, Australia, [3]Department of Respiratory Medicine, The Alfred Hospital, Melbourne, Australia, [4]Monash University, Melbourne, Australia

Background: There has been a rapid growth in wearable devices marketed for sleep. Trackers such as the Fitbit collect data through an accelerometer and use heart rate variability to estimate the sleep-wake state. Currently, Fitbit validation studies have only been with "healthy" adults and Insomnia Disorder.
Aims: The purpose of this study is to evaluate the accuracy of Fitbit Charge3TM compared to in-lab polysomnography (PSG) in patients with sleep disorders. Our hypothesis is that Fitbit Charge 3TM will perform with less sensitivity and specificity relative to PSG in the presence of sleep disorders.
Methods: A prospective study of patients attending a PSG through Epworth Camberwell Sleep Lab between 2019–2021 will be conducted. Fitbit Charge3TM will be worn on the wrist with concurrent PSG monitoring.
Parameters measured with both PSG and Fitbit Charge3TM will include total sleep time, Sleep onset latency, wake after sleep onset and time spent in N1, N2, N3 and REM sleep (min). Standard PSG data will be evaluated to diagnose sleep-disordered breathing.
Progress to date:Ethics approval has been obtained, and 110 participants have been recruited. 30-second epoch-by-epoch analysis will now be conducted. Bland-Altman analyses will be performed to assess agreement between the Fitbit and PSG.
Intended outcome and impact: Our novel study findings will provide evidence to address queries regarding the accuracy of the Fitbit trackers to evaluate sleep and may support the use of Fitbit Charge3TM as an initial screening device to assess sleep duration and sleep architecture in select patients.

O044

PROMISING QUESTIONNAIRES TO MEASURE SLEEP DISTURBANCE AND IMPAIRMENT

Antonov A[1], *Hamilton G[1,2]*

[1]Monash Lung Sleep Allergy and Immunology, Monash Health, Melbourne, Australia, [2]Monash University School of Clinical Sciences, Melbourne, Australia

Background: Obstructive sleep apnoea (OSA) is highly prevalent in Australia with significant health and economic impacts. OSA severity as measured by Apnoea Hypopnoea Index (AHI) does not reliably predict symptom burden as measured by questionnaires such as the Epworth Sleepiness Scale (ESS) or Functional Outcomes of Sleep Questionnaire (FOSQ). Our hypothesis is that utilising the standardised, scenario-agnostic, evidence-based Patient-Reported Outcomes Information System (PROMIS) questionnaires would yield better clinical utility. The primary aim was to validate PROMIS questionnaires in detecting symptom burden of OSA and its relationship to AHI. Secondary outcomes were to investigate the relationship between PROMIS questionnaires and other commonly used measures of sleep impairment and disturbance, and the relationship between PROMIS questionnaires and surrogate markers of sleep impairment on a Polysomnogram.
Methods: Analysis of prospectively collected data from 122 adult patients referred to an Australian University and Tertiary Hospital associated sleep apnoea clinic. All adult patients who completed extensive pre-assessment questionnaires and subsequently underwent polysomnography following clinician review were included in this study. Questionnaires included: PROMIS Sleep Disturbance, Sleep Related Impairment and Cognitive Function-Abilities questionnaires, FOSQ, ESS, Insomnia Severity Index (ISI) and Hospital Anxiety and Depression Scale (HADS).
Progress to date: Data collected for all 122 participants. Preliminary analysis currently underway. Intended outcome and impact: Examine utility of the novel PROMIS scales in measuring symptom burden in patients referred for suspected OSA and its relationship to AHI. Investigate the relationship between PROMIS scales, surrogate markers of sleep impairment and other validated sleep disorder questionnaires.