

ischemic stroke. Obstructive sleep apnea (OSA) and AF often coexist and share several predisposing factors. In patients with AF, assessment of thromboembolic risk, and subsequent use of appropriate therapy is crucial for stroke prevention. The aim of the present study is to understand if the presence of OSA carries a significant additional cardioembolic risk to patients with AF.

**Methods:** The ESADA Study prospectively collects data from unselected adult patients aged 18–80 years with suspected OSA referred European sleep centres. In the present study, patients with OSA and AF were included and the CHA2DS2-VASc score was calculated according to current guidelines. Based on ESC guidelines on AF, patients were stratified into 3 risk categories: low, moderate and high risk of cardio-embolic events.

**Results:** Cross-sectional data of 14646 patients were included in the analysis. From the total sample, a cohort of 363 patients with AF was analysed. The distribution of CHADVASC score is shown in figure 1. ODI, but not AHI, was significantly increased in category 1 and  $\geq 2$  when compared to low cardioembolic risk (Chi-squared  $p$ -value  $< 0.01$ ). Similarly, lowest SpO<sub>2</sub> was significantly reduced with the increase of CHADVASC risk score categories.

**Conclusions:** The analysis of the ESADA cohort confirms that OSA severity is associated with an increased cardioembolic risk in patients with atrial fibrillation. In particular, ODI but not AHI showed a significant association with CHADVASC score suggesting a potential role of intermittent hypoxia in the risk of developing cardio embolic complications such as stroke in patients with OSA and AF.

**Disclosure:** Nothing to disclose.

## O05 | Nocturnal pulse rate variability analysis in patients with positional obstructive sleep apnoea

D. Álvarez<sup>1,2,3</sup>; C.A. Arroyo<sup>1</sup>; A. Crespo<sup>1,2</sup>; J.F. de Frutos<sup>1</sup>; A. Cerezo-Hernández<sup>1</sup>; F. Moreno<sup>1</sup>; G.C. Gutiérrez-Tobal<sup>2,3</sup>; R. Hornero<sup>2,3</sup>; F. del Campo<sup>1,2,3</sup>

<sup>1</sup>Pneumology Department, Río Hortega University Hospital;

<sup>2</sup>Biomedical Engineering Group, University of Valladolid; <sup>3</sup>Centro de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Valladolid, Spain

**Objectives/Introduction:** Tachycardia and bradycardia patterns linked with apnoeic events have been found to be more severe during the supine position. However, their potential influence towards higher cardiovascular dysfunction on patients showing positional obstructive sleep apnoea (POSA) has been scarcely analysed. This study was aimed at assessing differences in heart rate modulation between POSA and non-POSA patients by means of non-linear analysis of nocturnal pulse rate variability (PRV).

**Methods:** Patients showing clinical symptoms of sleep disordered breathing were asked to participate in an ambulatory study focused on the reliability of obstructive sleep apnoea (OSA) characterisation

at home. All subjects performed unsupervised portable polysomnography (PSG) and simultaneous nocturnal pulse-oximetry (NPO). The apnoea-hypopnoea index (AHI) from at-home PSG was used to characterise OSA. Positional patients were identified according to Amsterdam POSA classification (APOC). PRV recordings from NPO were used to assess cardiovascular modulation. Multiscale entropy (MSE), which quantifies disorderliness (irregularity) of a time series in different time scales, was used to investigate non-linear dynamics of PRV in POSA and non-POSA patients. Mann-Whitney and Chi<sup>2</sup> tests were used to assess statistical differences between groups. All  $p$ -values  $< 0.05$  were considered statistically significant.

**Results:** A total of 336 subjects were involved: 16 were withdrawn due to technical issues during unsupervised NPO while 87 did not fit with APOC rules to discard/confirm POSA (AHI  $\geq 5$  events/h and at least 10% of sleep time in both supine and non-supine positions). Accordingly, 233 patients were analysed: 129 (72.1% males) were classified as POSA (APOC I, II or III), with median age of 56.0 [interquartile range 44.8–63.0] years and body mass index (BMI) of 27.7 [26.0–31.3] kg/m<sup>2</sup>, while 104 (71.2% males) were non-POSA, showing median age of 57.5 [49.0–67.0] years ( $p = 0.058$ ) and BMI of 29.8 [26.6–34.7] kg/m<sup>2</sup> ( $p = 0.009$ ). PRV recordings from POSA patients systematically showed higher entropy in the first (0.25 [0.20–0.31] vs. 0.22 [0.18–0.27];  $p = 0.004$ ), second (0.41 [0.34–0.48] vs. 0.37 [0.29–0.42];  $p = 0.004$ ) and third (0.52 [0.43–0.60] vs. 0.50 [0.38–0.57];  $p = 0.015$ ) scales compared to non-POSA patients.

**Conclusions:** PRV recordings from POSA patients showed marked irregularity in nocturnal cardiac modulation compared with non-POSA subjects.

**Disclosure:** This work has been partially supported by 'Ministerio de Ciencia Innovación y Universidades' and European Regional Development Fund (FEDER) under project DPI2017-84280-R; 'Sociedad Española de Neumología y Cirugía Torácica' (SEPAR) under project 66/2016; 'Gerencia Regional de Salud de Castilla y León' under project GRS 1472/A/17; and by CIBER-BBN (ISCIII), co-funded with FEDER funds.

## O06 | Effect of continuous positive airway pressure on the burden of arrhythmia in patients with paroxysmal atrial fibrillation and sleep apnea: a randomized controlled trial

G.M. Traaen<sup>1</sup>; L. Aakerøy<sup>2</sup>; T.-E. Hunt<sup>1</sup>; B. Øverland<sup>3</sup>; C. Bendz<sup>1</sup>; L.Ø. Sande<sup>1</sup>; S. Aakhus<sup>2</sup>; M. Fagerland<sup>1</sup>; S. Steinshamn<sup>2</sup>; O.-G. Anfinsen<sup>1</sup>; R. Massey<sup>1</sup>; K. Broch<sup>1</sup>; J.P. Loennechen<sup>2</sup>; H. Akre<sup>1</sup>; L. Gullestad<sup>1</sup>

<sup>1</sup>Oslo University Hospital, Oslo; <sup>2</sup>St. Olavs Hospital, Trondheim;

<sup>3</sup>Lovisenberg Hospital, Oslo, Norway

**Objectives/Introduction:** Sleep apnea (SA) has been associated with atrial fibrillation (AF). However, it is uncertain whether treatment with continuous positive airway pressure (CPAP) can reduce