

Support (if any): American Academy of Sleep Medicine Foundation (203-JF-18), National Institutes of Health (HL126140), University of Arizona Health Sciences Career and Development Award (5299903)

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THE ASSOCIATION OF QTc AND QT VARIABILITY WITH SEVERITY OF SLEEP DISORDERED BREATHING

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Introduction: The apneas and hypopneas that characterize sleep-disordered breathing (SDB) are associated with QTc prolongation and increased QT variability. There have been mixed results as to whether QTc and QT variability increase with increasing SDB severity. This study assesses whether QTc prolongation and QT variability are likely to increase with increasing severity of SDB in a large multi-center cohort.

Methods: 200 subjects with no SDB and approximately 600 with three levels of SDB (mild, moderate, severe) were randomly selected from the Sleep Heart Health study and matched by age, gender and BMI. SDB was defined as an apnea/hypopnea index ≥ 5 . Respiratory and electrocardiograms (ECG) signals from polysomnography studies were analyzed. Bazett's heart rate correction was used to calculate QTc. QT variability was measured as standard deviation of QT intervals (SDQT) and short-term interval QT variability (STVQT), at 5-minute intervals. Subjects were excluded if there were missing data or low-quality ECG.

Results: Seven hundred and seventy-one subjects (age 68 ± 10 years, 51% female, 92% Caucasian) were included. One hundred and sixty-five subjects had no SDB, 235 mild, 195 moderate and 176 had severe SDB. The mean (SD) QTc was 422(29), 411(26), 419 (34) and 418 (36) ms for the no SDB, mild, moderate, and severe SDB groups, respectively ($p=0.017$). The mean (SD) STVQT was 7 (9), 11 (16), 8 (9) and 9 (11) for the no SDB, mild, moderate severe SDB groups, respectively ($p<0.001$). The mean (SD) STVQT was 3 (2), 4 (4), 4 (3) and 4(4) for the no SDB, mild, moderate severe SDB groups, respectively ($p<0.001$). There was no statistically linear relationship between QT prolongation or QT variability and SDB severity.

Conclusion: QTc duration and QT variability were not increased with SDB severity.

Support (if any): American Academy of Sleep Medicine Foundation (203-JF-18), National Institutes of Health (HL126140), University of Arizona Health Sciences Career Development Award (5299903), and University of Arizona Faculty Seed Grant (5833261)

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CARDIOVASCULAR AND METABOLIC RISK IN PATIENTS WITH SUSPECTED COMORBID INSOMNIA AND OBSTRUCTIVE SLEEP APNEA (COMISA)

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Introduction: Only few studies looked for a possible association of cardiovascular disorders (CVD), in comorbid insomnia with

obstructive sleep apnea (COMISA) even though this is a relevant topic in order to prevent one of the major causes of morbimortality. The present study aimed to investigate the association of insomnia symptoms in patients at risk for obstructive sleep apnea in terms of prevalence and clinical interactions and to evaluate the risk of CVD in patients with a risk for COMISA.

Methods: This is a cross-sectional study. All medical records with data such as age, sex, height, weight and BMI, time to sleep, time to wake up, total sleep time, the Epworth Sleepiness Scale (ESS), STOP-BANG Questionnaires were studied. Insomnia and comorbidities were also investigated, and the patients answered yes or no to systemic arterial hypertension, diabetes, CVD.

Results: 685 patients were enrolled on the present study. We observed that the mild, moderate, and high risk for COMISA presented progressively increasing levels for the frequency of hypertension, diabetes, and CVD. A binary logistic regression was performed to assess whether risk for COMISA could be a predictor for CVD, and it was found that the model containing risk for COMISA was statistically significant: [$\chi^2(1)=5.273; p<0.021$, R^2 Nagelkerke=0.014]. Risk for COMISA presented itself as a significant predictor for CVD (OR=1.672; 95% CI=1.079–2.592).

Conclusion: There was an increased frequency of associated comorbidities such as CVD, systemic arterial hypertension, and diabetes, according to the mild, moderate, or high risk. These findings highlight the need for a cardiometabolic evaluation in patients with this comorbid condition which may impact prognosis and therapeutic success.

Support (if any):