





## 研究発表

### 〈学会誌等〉

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### 〈出版物〉

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Nakamura T, Chin K, Shimizu K, Ohi M, Mishima M. Effects of nCPAP therapy on QT dispersion in patients with obstructive sleep apnea-hypopnea syndrome.

### Abstract

**Objective:** To test the hypothesis that QT dispersion, which is defined as the longest QT interval minus the shortest QT interval, in patients with obstructive sleep apnea-hypopnea syndrome (OSAHS) changes with nasal continuous positive airway pressure (nCPAP) therapy.

**Methods:** We studied 48 patients with OSAHS [45 men and 3 women; age  $45.9 \pm 10.8$  yr, mean  $\pm$  SD; body mass index (BMI)  $30.2 \pm 4.3$  kg/m<sup>2</sup> and apnea-hypopnea index (AHI)  $51.9 \pm 18.5$  /hr] who underwent polysomnography before nCPAP was started and on the first night of nCPAP. We excluded patients with cardiac disease or arrhythmia sufficiently severe to require treatment. Electrocardiograms (ECGs) were recorded in these patients for 30 seconds before, during, and after sleep, during each polysomnography, and in the morning about one month later to calculate ECG values including the QT interval. ECGs were also recorded in 26 age-matched normal subjects (24 men and 2 women; age  $45.9 \pm 13.4$  yr and BMI  $23.7 \pm 2.2$  kg/m<sup>2</sup>) in the morning to obtain normal ECG values. All data were subjected to nonparametric tests.

**Results:** Morning values for the heart rate-corrected QT interval (QTcI) and QTc dispersion (QTcD) did not differ in OSAHS patients from normal subjects before, after one night or after one month of nCPAP therapy; Morning values for QTcI and QTcD were  $423.6 \pm 26.2$  mm<sup>1/2</sup> and  $60.1 \pm 12.8$  mm<sup>1/2</sup> before nCPAP,  $421.4 \pm 24.6$  and  $57.0 \pm 12.3$  after one night nCPAP, and  $426.6 \pm 28.1$  and  $57.6 \pm 12.5$  after one month nCPAP, respectively, in OSAHS patients vs  $427.6 \pm 22.6$  and  $59.5 \pm 16.0$ , respectively, in normal subjects. QTcI during sleep did not change with one night nCPAP ( $434.4 \pm 38.3$  mm<sup>1/2</sup> before nCPAP vs  $426.3 \pm 24.3$  with one night nCPAP). Meanwhile, QTcD during sleep significantly decreased with one night nCPAP ( $65.0 \pm 14.5$  mm<sup>1/2</sup> before nCPAP vs  $50.5 \pm 11.3$  with one night nCPAP,  $p < 0.0001$ ). QTcD during sleep before nCPAP was significantly correlated with mean arterial oxygen saturation (SaO<sub>2</sub>) ( $r = -0.425$ ,  $p = 0.004$ ) and the percentage of time that SaO<sub>2</sub> was below 90% ( $r = 0.347$ ,  $p = 0.017$ ) during sleep before nCPAP. The reduction in QTcD during sleep with one night nCPAP was significantly correlated with the reduction in AHI ( $r = 0.366$ ,  $p = 0.012$ ).

**Conclusions:** The present study suggests that nCPAP therapy decreases nocturnal myocardial electrical instability in patients with OSAHS even in the absence of cardiac disease or severe arrhythmia.