

The Association between Obstructive Sleep Apnea Syndrome and Driver Fatigue in North Taiwan Urban Areas

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Abstract : Background: Driving fatigue related to inadequate or disordered sleep accounts for a major percentage of traffic accidents. Obstructive sleep apnea syndrome (OSAS) is a common respiratory disorder during sleep. However, the effects of OSAS severity on driving drowsiness remain unclear. Objective: The aim of this study is to investigate the relationship between OSAS severity and driving fatigue. Methodologies: The physical condition while driving was obtained from the questionnaires to classify the state of driving fatigue. OSAS severity was quantified as the polysomnography, and the mean hourly number of greater than 3% dips in oxygen saturation during examination in a hospital in New Taipei City (Taiwan). The severity of OSAS was diagnosed by the apnea and hypopnea index (AHI) with the American Academy of Sleep Medicine (AASM) guideline. The logistic regression model was used to examine the associations after adjusted age, gender, neck circumference, waist circumference, and body mass index (BMI). Results: There were 880 subjects recruited in this study, who had been done polysomnography for evaluating severity for OSAS as well as completed the driver condition questionnaire. 752 subjects were diagnosed with OSA, and 484 subjects had fatigue driving behavior in the past week. Patients diagnosed with OSAS had a 9.42-fold higher odds ratio ($p < 0.01$, 95% CI = 5.41 - 16.42) of driving drowsiness for cohorts with a normal degree. Conclusion: We observe the considerable correlation between OSAS and driving fatigue. For the purpose of promoting traffic safety, OSAS should be monitored and treated.

Keywords : obstructive sleep apnea syndrome, driving fatigue, polysomnography, apnea and hypopnea index

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