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Hypoxemia during sleep in patients with vasospastic angina

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Background: Previous studies have shown the associations between sleep-disordered breathing (SDB) and vasospastic angina (VSA). However the characteristics of SDB related to VSA have been unknown.

Purpose: We investigate the characteristics of SDB in VSA patients, with focus on the role of nocturnal hypoxemia, which may trigger nocturnal ischemic attacks, typical attacks occurred during sleep in early morning.

Methods: We studied 33 patients who were diagnosed with VSA, based on diagnostic algorithm in the Japanese Circulation Society guidelines 2013 for VSA. All patients underwent polysomnography. Twenty one patients with moderate-severe SDB [apnea-hypopnea index (AHI) of at least 15/hour] diagnosed with polysomnography, but without cardiovascular diseases, were served as controls.

Results: Only 3 patients with VSA were free of SDB (AHI less than 5/hour). Moderate to severe SDB was found in 25 of 33 patients with VSA.

These 25 patients were further studied. Daytime sleepiness assessed by the Epworth sleepiness scale, was lower in SDB patients with VSA than those without it (4.8 ± 4.2 vs. 8.9 ± 4.0 ; $p=0.02$). There were no differences in AHI between SDB patients with and without VSA (41.2 ± 17.2 /hour vs. 39.9 ± 14.4 /hour), but hypoxemic burden (time with oxygen saturation $<90\%$) was higher in those with VSA than those without it [(median 20.7minutes, interquartile range 6.4–48.0minutes) vs. median 5.9minutes, interquartile range 3.9–11.0minutes); $p=0.01$]. In VSA patients, 39% of hypoxemia was observed in rapid eye movement (REM) periods of sleep, which accounts for only 18% of total sleep.

Conclusions: A high prevalence of moderate-severe SDB was found in VSA patient, although the symptoms were mild. Hypoxemia is a characteristic of SDB associated with VSA, which may be a target for therapeutic intervention in addition to drug therapy.