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## Neuropsychiatric consequences in obstructive sleep apnea syndrome & traffic safety

A BÜTTNER, Teleaga

a Woosuk University, 565701 Samryeup, Wanjugun, Jeonbuk, South Korea

b University WittenHerdecke, 58448 Witten, A. HerrhausenStr. 50, Germany

**Introduction** Obstructive Sleep Apnea Syndrome (OSAS) lead to physical problems like hypertension and arrhythmias and mostly to neuropsychiatric consequences like Brain atrophy, Depression Anxiety and Insomnia. Apart from a multitude of physical complaints, OSAS patients suffer from excessive daytime sleepiness, reduced sustained attention, limited memory processes and cognitive functions. Among other aspects, such a decline in performance influences the persons affected in their ability to drive a car. Considering the poor knowledge of reliable facts of etiology in neuropsychiatric diseases could show unusually cleancut conditions of interference with the mechanism of mental and sensorymotor plasticity.

**Methods** In our study we used neuropsychological and neuropsychiatric methods: in different patient groups in a sleep laboratory. Over the past five years we have been testing more than 2000 patients. During admission to the clinic, all patients were selected according to their clinical diagnosis (ICD10) and all patients were examined neurologically, neuropsychologically and psychiatrically. All test presons must not suffer from any severe psychiatric disorders. The study was carried out involving all groups of randomly selected patients with OSAS on a number of neuropsychiatric parameters,

**Results** Testing of neuropsychiatric diseases and difficulties and quality of life revealed a highly significant difference between healthy persons and OSAS patients ( $p < 0.05$ ). Examination of specific domains of neuropsychiatric diseases and quality of life, untreated

OSAS patients had inferiority scores than those who had undergone therapy. After more than 6 weeks nCPAP therapy, the neuropsychiatric diseases of the OSAS patients, and quality of life improved to a significant degree ( $p < 0.05$ ). Analysis of the degree of severity showed for OSAS that on the whole, there is a significant difference concerning neuropsychiatric diseases and quality of life.

**Discussion** The study revealed that patients with OSAS whos neuropsychiatric problems and deficits concerning their vigilance achievements, their memory processes and their quality of life. The improvement if vigilance achievements and memory processes show a lower driving fitness (traffic safety) in untreated patients and increasing traffic safety in treated patients. In summary, based on our results, it is to be said that although a continuous nCPAP therapy improves the OSAS symptoms; neuropsychiatric consequences and the quality of life require longerterm degeneration. ■

## Sudden onset of disease while driving a fourwheeled vehicle: a retrospective analysis for commercial driver in Japan

Masahito HITOSUGI<sup>a</sup>, Takao OOKUBO<sup>b</sup>, Shogo TOKUDOME<sup>a</sup>

a Department of Legal Medicine, Dokkyo Medical University School of Medicine, Tochigi, Japan

b Japanese Council of Traffic Science, Tokyo, Japan

Recent progress in automotive technologies and continuous upgrades in global safety standards have considerably improved automotive collision safety. Sudden onset of the signs and symptoms of the diseases while driving fourwheeled vehicles is a crucial cause of traffic accidents. Because such accidents are not due to a human error, and can endanger the lives of other road users, detailed analysis and preventive measures are required to enhance road traffic safety. We retrospectively analyzed 211 commercial drivers (taxis, 70; trucks, 53; buses, 88) in whom the sudden onset of any signs and symptoms of the diseases had obliged them to stop driving, from data collected by the Ministry of Land, Infrastructure, Transport and Tourism, Japan from 2004 through 2006.

Cerebrovascular disease was a major cause of trafficrelated incidents (28.4%), followed by cardiac diseases (23.2%),

syncope (8.5%), and digestive diseases (8.1%). Of the 76 fatalities, cardiac disease was the most frequent (50.0%), followed by cerebrovascular (32.5%) and aortic (7.9%) diseases. Of the 187 drivers in whom sudden onset of signs or symptoms of a disease occurred while in control of a moving vehicle, 66 (35.3%) avoided collisions by attempting avoidance maneuvers (breaking or steering). However, subsequent traffic accidents occurred due to drivers losing control (64.7%), also resulting in injury to passengers and other road users. In 76 of 88 incidents involving bus drivers, an average of  $13.9 \pm 14.1$  passengers traveled by bus and of those, an average of  $5.2 \pm 5.6$  passengers in 10 buses became injured. Seventeen of 70 taxi drivers caused subsequent accidents that resulted in injury to passengers or road users of  $1.7 \pm 1.5$  (mean  $\pm$  SD) per accident. Ten of 53 truck drivers also caused accidents with a mean injured person among road users of  $5.6 \pm 6.7$ . The persons had enough holidays (7 to 9 days) within one month of the onset. Those who had caused accidents had been on 7-9 days of holiday within one month of onset.

Concern for the health of commercial drivers is important because driving a vehicle often constitutes significant emotional stress. Furthermore, when driver lose control of a moving vehicle due to sudden signs or symptoms of diseases, other road users and passengers can become injured due to subsequent accidents. Therefore, to minimize the likelihood of such incidents, we investigated the actual condition of professional drivers in Japan. The data are based on comprehensive and highly reliable reports obtained according to Japanese law. To predict the risk of sudden disease onset while driving from annual routine medical checkups is difficult. Prventive safety measures that address the physical condition of employees, particularly of commercial drivers should be implemented at the government level. Furthermore, findings indicate that active preventive safety measures should also be promoted to prevent secondary accidents. ■

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