Screening for Sleep Disordered Breathing (SDB) in Truck Drivers in the US

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On 9th March 2015, Dr. KALES Stefanos, Associate Professor of Harvard Medical School and Harvard School of Public Health, visited the Juntendo University and gave a talk, entitled "Screening for sleep disordered breathing (SDB) in truck drivers in the US" (Figure-1).

After Professor DAIDA Hiroyuki, Director of Juntendo University Hospital & Professor of Department of Cardiovascular Medicine, kindly introduced him with a warm-hearted welcoming speech, Dr. Kales started his talk by referring to the current situation in the US: obstructive sleep apnea (OSA), one of major diseases that cause SDB in the adult population, is characterized by excessive daytime sleepiness, psychomotor deficits, impaired vigilance, and sleep which is frequently disrupted by SDB. This constellation of symptoms increases the risk of traffic accidents. It was estimated that 10–30% of truck crashes are associated with driver fatigue/sleepiness. Similar issues are also shared by Japanese truck drivers, as the prevalence of SDB in truck drivers is estimated to be as high as 25% in both countries. Obesity is also a common risk for SDB, and furthermore, OSA is "under-recognized" in both countries. On the other hand, many Japanese truck drivers with SDB are not obese. Dr. Kales emphasized that screening for SDB in truck drivers is an urgent issue in the US, as well as in Japan, and he also described some potential future approaches to screening for SDB, using psychomotor vigilance test and driving simulator. In addition, he described standard occupational health and safety tools, including education, administrative controls, OSA screening, drug tests, driver monitors, and vehicle controls. By summarizing these various approaches, Dr. Kales proposed an overall approach, based on the "Swiss cheese model": you may be able to look through one of many holes on a single slice of Swiss cheese, but you cannot do so through several layers of Swiss cheese slices in series (Swiss cheese model theory, Figure-2). Likewise, any one of the individual approaches to screening SDB cannot completely identify all individuals who are at high risk for traffic accidents. However, a combination of those tools could considerably decrease the risk of traffic accidents.

Dr. Kales’s talk clearly depicted that SDB is socially under-recognized although it is one of the socially un-ignorable causes of traffic accidents, and effective diagnostic and therapeutic strategies are already established, suggesting that we can reduce traffic accidents now.

Because the US and Japan share many common issues, Dr. Kales and Professor Tanigawa launched a global project to tackle SDB, attempting to reduce traffic accidents. We held a symposium last October at the Harvard School of Public Health in Boston and had a discussion of issues regarding why companies, governments and/or societies in both countries were reluctant to introduce more aggressive SDB screening programs. We are not describing it in detail here, but we, faculty members at both Juntendo and Harvard, will continue to work in hand in hand to establish the evidence, showing that SDB screening is effective and can decrease accidents among truck drivers in both countries. Herein, it should be noted that International Association for Traffic and Safety Sciences (IATSS) supported not only the two meetings, one in Harvard School of Public Health and another in Juntendo University, but also the associated research project organized by Professor Tanigawa.

The talk given by Dr. Kales attracted as much as 48 participants, even including two officers of the Traffic Bureau of the National Police Agency, which encouraged us greatly. Several medical students of Juntendo also joined the talk and enjoyed the discussion. We believe that this surely provided them with a unique opportunity to consider global issues and enlarge their horizons for their own future.

Finally, we would like to express sincere gratitude to Professor OGAWA Hideoki, CEO, Juntendo University, who understood the significance of this meeting, kindly supported and encouraged us to organize this meeting in the desirable milieu in Century Tower, the Main Building of Juntendo University.

**Key words:** OSA, SDB, Swiss cheese model, traffic accident, Harvard University
Figure 1  A scene in Dr. Kales’ talk on 9 March 2015

Figure 2  Swiss Cheese Model using a combination of SDB screening and mitigation tools