LETTERS TO THE EDITOR

Sleep Evaluation by Actigraphy for Drinkers

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Geoghegan et al. (2012) recently reported the sleep quality of 33 college students, aged 20–25 years, using wrist actigraphy in combination with sleep diary and mood questionnaire to know the effect of alcohol on sleep. As a main result, they observed significant decreases in total sleep time and sleep latency associated with alcohol drinking. They speculated on the mechanism in this change of sleep by dividing sleeping period and the amount of drinking.

This raises two queries. First, validation study of wrist actigraphy, named Actiwatch®, is needed by making sleep polysomnography as a gold standard, which was also mentioned in the ‘Discussion’ by Geoghegan et al. (2012). Actigraphy is an accelerometer and it does not always reflect sleep status. The initial cut-off value of Actiwatch® was set at 40 counts/min (medium sensitivity), but other cut-off points of sensitivity to judge wakefulness could be selected according to the Users’ Manual of Actiwatch® (2008). On this point, Geoghegan et al. (2012) quoted a paper by Kushida et al. (2001) describing validation on actigraphy. But Kushida et al. (2001) concluded that the best cut-off point to detect wakefulness using Actiwatch® was observed when high sensitivity (20 counts/min) was selected for the analysis. Unfortunately, there was no description on the cut-off point in paper presented by Geoghegan et al. (2012). We recently reported a nap study for young generation in which sleep duration was most validated when high sensitivity (20 counts/min) was selected for the analysis (Kawada et al., 2012), and this value was in concordance with that reported by Kushida et al. (2001).

Secondly, the sample is limited in the Geoghegan study, which restricts consideration of confounding factors on the association between sleep quality and alcohol. For example, Argyriou et al. (2011) conducted a cross-sectional study for caregivers of patients, showing that poor sleep quality correlated with increased levels of anxiety and depression. They used the Pittsburgh Sleep Quality Index and the Hospital Anxiety and Depression Scale and the sleep duration and sleep latency were mostly influenced by the degree of emotional distress. I also reported that subjectively reported sleep duration for subjects with poor sleep quality was negatively related to depressive state evaluated by Patient Health Questionnaire 9-item version (Kawada, 2012). Namely, short sleep duration of poor sleepers was significantly related to the increase of depressive episode. A larger sample would be needed to evaluate the role of such factors.

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Investigation of the Effects of Alcohol on Sleep Using Actigraphy

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We thank Professor Kawada for his interest in our study.

We agree that we should have included the sensitivity setting for the actigraph. We did in fact use the high-sensitivity (20 counts per minute) setting, which as the authors pointed out has previously been suggested to be the best to detect wakefulness when compared with polysomnography.

We accept that a larger sample size would have allowed firmer conclusions to be drawn, in particular in relation to subgroup analyses and comparisons. We pointed out this limitation in our discussion. However, many of the historically significant investigations of the effect of alcohol on sleep have had similarly small sample sizes or smaller, for example Stone (1980) is widely cited in the literature on alcohol, but had only six subjects.

The difficulty in assessing confounding factors is, of course, common in observational studies and even more an issue in observational studies with small sample sizes. Indeed the possibly causal relationship between sleep and mood, and the direction of causality, has in particular been difficult to tease out. We acknowledged this in the discussion.