P-1356 - CHRONIC SLEEP RESTRICTION INHIBITS BRAIN ACTIVITY MEASURED BY NEAR-INFRARED SPECTROSCOPY

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Introduction: Chronic sleep restriction results from a number of factors; medical condition and social demands, and has adverse effects on daytime function, such as cognitive function and driving performance. We demonstrated that the acute sleep restriction (time in bed < 4h/night) impaired cortical oxygenation response during word fluency task.
Objectives: We examined the chronic effect of insufficient sleep on cerebral blood flow and cognitive function.
Methods: Ten healthy adults (mean age 19.0 years, mean BMI 22.5 kg/m^2) were enrolled in this study. All participants spent > or = 8h/night in bed prior to study day (sufficient sleep), followed by < 4h/night in bed for 3 days (insufficient sleep1, 2 and 3). The oxyhemoglobin (oxyHb) level by a word fluency task was measured with a near-infrared spectroscopy recorder on the morning following sufficient and insufficient sleep 1 and 3. Wisconsin card sorting test (WCST), continuous performance test -identical pairs version (CPT-IP) and 2-back test were evaluated on the same day.
Results: The peak oxyHb during the word fluency task was significantly reduced after insufficient sleep 1 and 3 than that after sufficient sleep. The percentage of correct responses on CPT-IP and 2-back test after insufficient sleep 3 were lower than those after sufficient sleep, though there were no significant differences on those. WCST did not significantly differ among insufficient sleep 1 and 3 and sufficient sleep.
Conclusions: The chronic sleep restriction reduced cortical oxygenation response, and might result in cognitive performance impairment.

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