

Effects on continuous hydrogen inhalation on female subjects with Insomnia

Hayashi Yukari, Takehara Takashi, Yata Yukihiro
AquaBank Co., Inc, Tsukuba University Global Institution

Background

- The immediate effects of a single inhalation of hydrogen on psychological and physiological functions were examined in young healthy female subjects. The results showed that hydrogen inhalation significantly increased blood flow in the prefrontal cortex and reduced fatigue and stress, and suppressed sympathetic nerve activity, resulting in sedation. The results suggested that hydrogen inhalation activated the central system. (Presented at the 18th Annual Meeting of the Society)
- The effects of continuous hydrogen inhalation on psychological and physiological functions were examined in healthy elderly subjects. The results showed a decrease in negative emotions and an increase in the recall of positive emotions. In addition, the improvement of central functions (reduction of brain fatigue, increase in brain activity, etc. In addition, significant changes in MCI risk factors suggest that continuous use of hydrogen aspiration may maintain and improve cognitive function in the elderly. (Presented at the 19th and 20th annual meetings of the society)

Objective

Verification of the effects of continuous hydrogen inhalation on sleep in healthy women suffering with insomnia

Method

Participants: Twenty-two healthy working women (30-45 years old; mean age 36.9 ± 5.1 years) with insomnia who lived in and around Tokyo were included in the study.

Contents of the Study: 22 subjects were randomly divided into two groups. **Group A:** 1 week of hydrogen use \rightarrow 1 week of non-use, for a total of 2 weeks **Group B:** 1 week of non-use \rightarrow 1 week of hydrogen use, for a total of 2 weeks **Group B:** 1 week non-use \rightarrow 1 week hydrogen use \rightarrow 2 weeks total Stress awareness assessment: Stress checklist 30 items (SCL30) Emotion and mood assessment: Multimodal Mood Scale (MMS) Sleep disturbance assessment: Pittsburgh Sleep Questionnaire Japanese version (PSQI-J) Waking sleep perception assessment: OSA Sleep Questionnaire MA (OSA-MA) Sleep state analysis: Small activity meter (Micro Tag Activity Meter MTN-220)



Ethical Considerations: The study was conducted under the approval of the Ethical Review Committee of Chiyoda Para Medical Care Clinic. Subjects were fully informed of the study contents and gave their consent via the consent form.

Survey Method:

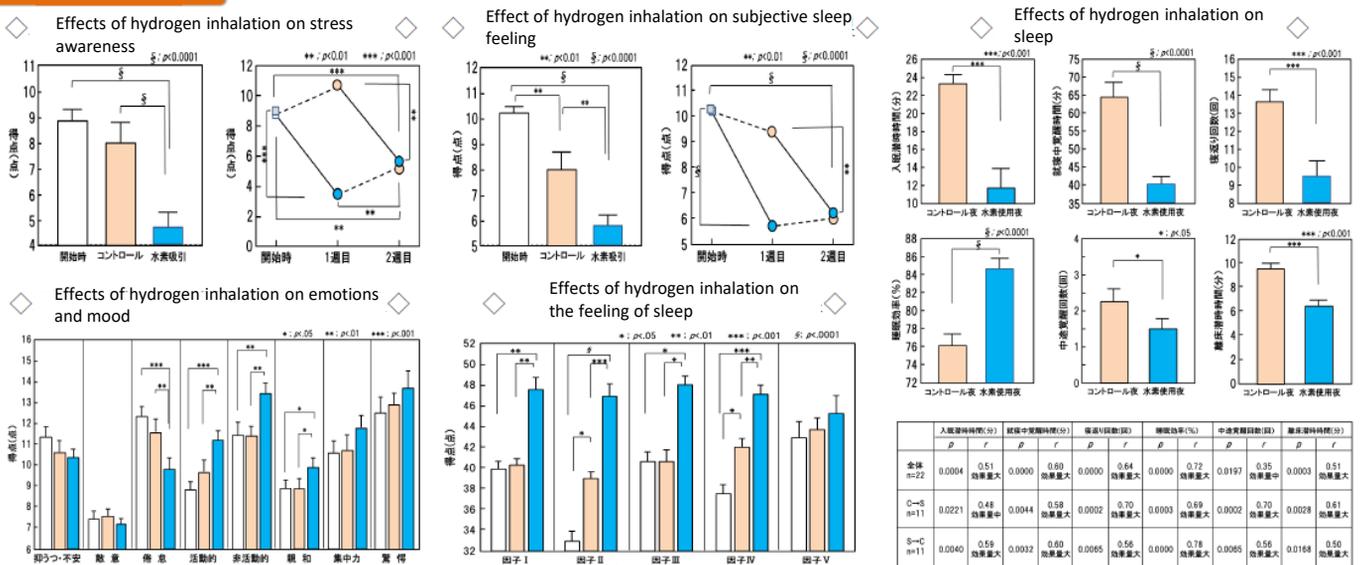
For the period of hydrogen use, a hydrogen inhaler (KENCOS III (AquaBank, Inc.) five times a day for five minutes at a time. In the diary, the number of times they inhaled per day, their mood and physical condition, bedtime, and the time of day were recorded.

The subjects were asked to write down their changes in tone, bedtime, and wake-up time.

Subjects were asked to complete the SCL30, MMS, PSQI-J and OSA-MA questionnaires at the beginning of the study, after one week, and after the final two weeks. For the analysis of sleep, a Micro Tag activity meter was worn in the middle of the abdomen except during bathing, and the amount of activity during the day and during sleep was measured. Sleep variables (bedtime, sleep onset time, waking time, number of tosses and turns, sleep efficiency, etc.) were calculated for each of the three weekdays (Tuesday, Wednesday, and Thursday) using Sleep Sign[®] Act, a program for studying sleep/wake rhythms.

Analysis method: A t-test and effect size (r) test were conducted for the effect of continuous hydrogen aspiration. IBM SPSS Statistics25 was used for the analysis.

Results



Conclusion

Effects of continuous hydrogen inhalation on sleep;

- Significant suppression of negative emotions such as stress consciousness and fatigue, and enhancement of positive emotions such as activity and affinity were suggested.
- A significant improvement in subjective sense of sleep was observed. In addition, a significant improvement in the feeling of sleep upon awakening and recovery from fatigue was observed.
- In fact, analysis of nighttime sleep showed a significant reduction in sleep onset latency and mid-wake time, and a significant increase in sleep efficiency.

\rightarrow For the first consecutive use of hydrogen has been shown to improve sleep