The effect of *Acanthopanax senticosus* Harms on improving sleep quality : randomized placebo-controlled crossover trial

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[Study Objectives]

Sleep is a physiological state that is essential for healthy living; nevertheless, the nocturnal life style in which many people live in contemporary society can result in a shorter sleep time or sleep-waking rhythm disorder. One in three Japanese elderly people are assumed to be suffering from insomnia. Inhibited sleep may result in adverse effects on cerebral or immunity functions, which may lead to the onset of depression or lifestyle diseases. It has also been reported that reducing stress might result in improving the quality of sleep.

Thus, a study was conducted to examine the sleep improving effects of *Acanthopanax senticosus* (AS) in elderly people, which has showed significant effects in the previous studies, and the results were published in a medical journal.

[Method of experiments]

A double-blind, crossover comparative study was conducted in 5 male subjects (aged 46–70 years) who were dissatisfied with their sleep quality. They were given 40 tablets/day of the AS food supplement made from AS root powder (AS group) or 40 tablets/day of the placebo tablet (placebo group), 20 tablets each after breakfast and dinner for 4 weeks separated by a 4-week washout period.

The sleep states of each subject at the start of administration and 4 weeks later were assessed by an all-night polysomnography (PSG)[*1] test, and questionnaires using the Pittsburgh Sleep Quality Index (PSQI)[*2] and OSA Sleep Inventory MA version[*3].

[Results]

Based on the results of PSG, deep sleep (stages 3 and 4) significantly increased in week 4 compared with week 0 and the number of arousal reactions per hour significantly decreased in the AS group. Deep sleep (stages 3 and 4) in the AS group also significantly increased compared with that in the placebo group in week 4.

These results suggest that 4-week ingestion of *Acanthopanax senticosus* may improve the sleep quality in human with sleeping complaints.

Table. The results of the PSG test

		groups	0 week	4 week
number of arousals	Time	Placebo	76.0 ± 24.1	102.2 ± 86.8
		AS	76.0 ± 25.9	58.8 ± 33.2
	Time/h	Placebo	12.2 ± 3.7	14.3 ± 11.3
		AS	11.1 ± 3.6	8.3 ± 4.4#
deep sleep stages 4	Time (min)	Placebo	3.6 ± 8.0	3.7 ± 5.3
		AS	6.0 ± 8.3	11.8 ± 12.0
	%	Placebo	1.0 ± 2.3	0.9 ± 1.3
		AS	1.4 ± 1.9	2.9 ± 2.9
deep sleep stages 3 and 4	Time (min)	Placebo	27 ± 13	25 ± 18
		AS	25 ± 16	41 ± 14*##
	%	Placebo	7 ± 2	6 ± 4
		AS	6 ± 4	9 ± 3.9*##

Mean±SE (n=5). #p <0.05, ##p <0.01 vs 0 week. *p <0.05 vs placebo group.

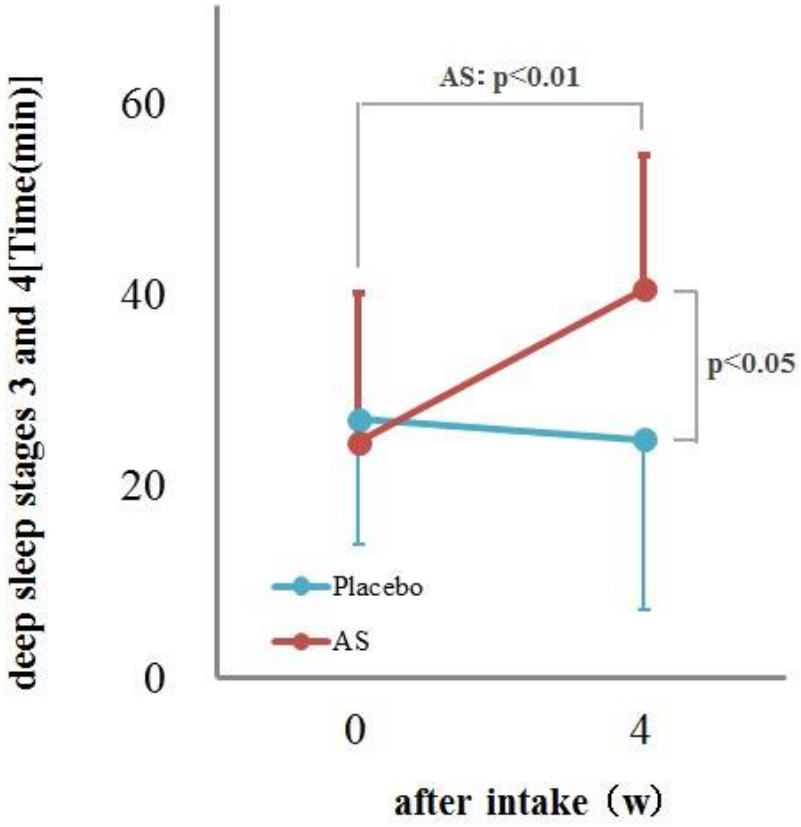

Figure. The results of the PSG test

[Publication in a scientific journal]

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[Explanation of terms]

＊1: Polysomnography (PSG)

This is a test for assessing the sleep state on a comprehensive basis. The method quantifies the depth of sleep, fragmentary sleep or arousal responses, and sleep efficiency by measuring brain waves and eyeball movements.

Sleep is divided into four stages, 1 to 4. Sleep stages 3 and 4 are deep sleep.

＊2: Pittsburgh Sleep Quality Index (PSQI)

This is a questionnaire system in which subjects are asked about the states of sleep that they had, and such states are assessed according to the total score on 18 items. The lower the score is, the better the sleep quality is.

＊3: OSA Sleep Inventory MA version

This is a questionnaire system in which subjects are asked about their feeling of sleep just after they wake up on 20 items. The higher the deviation is, the better the sleep quality is.