

Acupuncture and Moxibustion Treatment for Insomnia

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Insomnia is a condition in which sleep is disturbed [1]. 21% of adult people suffers from insomnia. In the elderly people over 60 years of age, the ratio of insomnia is reported to be more than 30% [2]. Sleep deprivation contributes to internal diseases. The prevalence of various physical diseases in insomniacs is reported to be more than twice as high as in healthy subjects [3]. In the relationship between sleep and attention, insomnia induces accidents due to decreased attention. In automobile accidents, the micro-sleep, momentary loss of consciousness, occurs while driving [4]. A Japanese study on sleep and life expectancy found that 7 hours of sleep has the lowest mortality rate for both men and women [5].

The first law of sleep is the Circadian Rhythm, which fluctuates in a 24-hour cycle. The second law of sleep is the Ultradian Rhythm, which fluctuates within a 24-hour period, often with a 90-minute cycle [6]. The third law of sleep is Homeostasis, which refers to sleepiness after being forced to stay awake. Sleepiness increases in proportion to the duration of wakefulness and decreases in proportion to the duration of sleep [7]. Sleeping pills

were initially benzodiazepines, but are now nonbenzodiazepines and other pills. Prescriptions of melatonin receptor agonists and orexin receptor antagonists with newer mechanisms of action have increased in frequency over the years.

Insomnia is classified into chronic insomnia disorder, short-term insomnia disorder, and other insomnia disorders. Insomnia tends to be chronic and easily prolonged when medical practitioners treat thoughtlessly. Therefore, it is now called insomnia disorder instead of insomnia [8]. The International Classification of Sleep Disorders, 3rd Edition (ICSD-3) has six separate diagnostic categories of sleep disorders.

The diagnosis of insomnia is made by first making a differential diagnosis of insomnia and then excluding secondary insomnia, such as diabetes mellitus. In the discrimination of insomnia from other disorders, insomnia is characterized by the belief that the patient is unable to sleep, not that he or she is not sleeping. When the time and quality of sleep is compared by lectroencephalogram (EEG), the EEG actual sleep time of healthy subjects and depressed patients is proportional to the

subjective sleep time reported by the patient [9]. Insomniacs have shorter subjective sleep time than actual sleep time.

The mechanism of insomnia has two characteristics. 1. somatized tension, which is stiffness throughout the body. 2. associations disturbing sleep that was learned by the thought that they may not be able to sleep. Insomnia in the elderly, especially nocturnal awakenings, creates a variety of problems [10]. Sleep disturbances in the elderly results in excessive daytime sleepiness, cognitive dysfunction, incidence and exacerbation of physical and mental illness, nighttime falls, decreased quality of life, and overuse of sleeping pills.

Treatment of insomnia by modern medicine includes lifestyle guidance, sleep mechanism education, and the use of cognitive-behavioral therapy. Cognitive-behavioral therapy includes stimulus control, sleep restriction, food and beverage management, and elimination of social jet lag [11]. The mechanism of insomnia according to Oriental medicine is as follows. The heart stocks God and is the center of mental and conscious activity. The loss of the heart and God causes symptoms such as insomnia and excessive dreaming [12]. Sleep is related to the movement of the defense-qi, the rise and decline of yin and yang, and the function of storing blood in liver [13].

Acupuncture and moxibustion treatment based on modern medicine is indicated for occasional insomnia and neurotic insomnia [14]. Occasional insomnia is external stimuli, disorder of lifestyle habits, the disturbances of normal sleep due to transient mental tension, and

sleep rhythm disorder. In most cases, symptoms improve when the cause is eliminated. Neurotic insomnia is caused by psychological mechanisms that completely solidify occasional insomnia, or it develops despite the absence of any recognized triggers. Occasional insomnia and neurotic insomnia are largely related to the patient's personality tendencies. The most commonly used acupuncture points are GV20, GV22, BL10, GB20, GB12, and GB21.

Acupuncture and moxibustion treatment based on Oriental medicine follows the treatment for insomnia as described in the Yellow Emperor's Classics of Internal Medicine and the Classic of 81 questions. Insomnia caused by temporary mental tension, thinking, effects of the living environment, and abnormal heat or cold are not considered pathological conditions. Insomnia caused by fever, pain, cough, asthma, etc., should be addressed at its source. The pattern identification of insomnia are classified into four categories: phlegm-heat, liver-fire, both heart and spleen deficiency, and disharmony between the heart and kidney.

Acupuncture and moxibustion treatment is not clear to be effective, based on the evidence in the Cochrane Review. In PubMed, there were 91 reports in (Acupuncture × Insomnia), 3 reports in (Moxibustion × Insomnia), and 78 reports for randomized controlled trial (RCT), of which 53 documents were reported from China [15]. The acupuncture points were, in order of frequency, HT7, GV20, SP17, Ex-HN1, GV24, and PC6 [16]. Acupuncture to HT7 realized statistically significant improvement of sleep rather than

acupuncture to other sites in both hands [17]. Auricular acupuncture is often combined with Shen-men, Heart, and Anmian [18]. In Japan, there were 91 search results and 3 reports for RCT [15]. There is a report of evaluation using the obstructive sleep apnea (OSA) questionnaire, after conducting a randomized crossover controlled trial [19]. Scores increased for falling asleep and maintaining sleep, dreaming, and recovery from fatigue. CV12, LR14, ST25, CV6, BL10, GB20, BL11, GB21, BL13, BL14, BL20, BL23, and BL25 were used.

In the report of individual acupuncture and moxibustion treatment, time to fall asleep, nocturnal awakening, and sleep quality are improved. Sleep disorders and complaints associated with sleep disorders were shown the effectiveness of acupuncture and moxibustion treatment [20]. In a clinical study of the effects of acupuncture and moxibustion treatment, symptoms improved the day after treatment, but the symptoms is returned more than a week later [21]. To prolong the effect, it is important to combine acupuncture and moxibustion treatment with self-care therapy such as press needles [22], pedestal moxa [23, 24, 25, 26], foot bathing [27], and auricular acupuncture [15].

As a result of acupuncture and moxibustion treatment for the elderly, patients were able to sleep well [28]. After mild-warm moxibustion treatment was performed on a patient with Parkinson's disease who had been found to have restless leg syndrome, insomnia was no longer a problem at all after four months [10]. In the effects of acupuncture and moxibus-

tion treatment on elderly patients visiting the acupuncture clinics, sleep improved in 42% of the patients [29].

In discussion, effective acupuncture and moxibustion treatments for insomnia are shown. When one gets into debt for one hour of sleep due to sleep deprivation, normal sleep for four days is necessary to repay the debt. Therefore, adequate enlightenment to people is necessary to avoid sleep deprivation on a daily basis. Stress is a factor in insomnia. When the patient get into bed, anxiety and worry come to mind and he or she becomes mentally tense. As a result, the muscles of the body tense up or grit their teeth by both somatic and functional origin. The tension of muscle etc causes arousal, making it difficult to sleep. The increased anxiety of not being able to sleep until morning becomes an additional stressor. Thus, the mere thought of not being able to sleep causes physical tension. The physical tension becomes a conditioned reflex, and as soon as the patient gets into the bed, he or she feels stress and the muscle gets tight, making it difficult to sleep.

By suppressing muscle tension, insomnia is relaxed. If muscle tension is removed by acupuncture and moxibustion, it is possible to treat insomnia with acupuncture and moxibustion. It is thought that insomnia can be alleviated if the parasympathetic nervous system is made dominant through the approach of acupuncture and moxibustion treatment to the acupuncture points for sleep. In addition, when the muscles that are tense due to stress are relaxed by acupuncture and moxibustion, it is possible to treat in-

somnia with acupuncture and moxibustion. Based on the relationship between muscle tension and sleep, it is possible to suppress insomnia by alleviating stiff shoulders and back tension. The reason why people become sleepy during acupuncture and moxibustion treatment is because of the muscle relaxing effect by acupuncture and moxibustion treatment. The effect can be expected not only during the treatment, but also by simply maintaining muscle relaxation for several days after the treatment. To prolong the effect, the combination of acupuncture and moxibustion treatment and self-care such as pedestal moxa and auricular acupuncture is important. In nocturnal awakening, the muscles that become tense by the insomnia are examined to determine the location of the muscles, and the tense muscles should be identified by palpation. By introducing self-care to relieve muscle tension for the tense muscles, over a long period of time, it is possible to induce sleep quickly at home.

The timing to remove muscle tension by acupuncture and moxibustion treatment is important. Relief of muscle tension by acupuncture and moxibustion treatment before bedtime is considered to be effective. When the patient feeling stressed, it may be effective to make it a habit to have a treatment at a nearby acupuncture clinic to remove muscle tension some time after dinner and get a deep sleep. It will be important to spread the information to the general public that acupuncture and moxibustion treatment before bedtime at an acupuncture clinic is effective for insomnia.

Although the elderly complain of

chief complaints other than sleep disturbance, 80% of them actually have sleep disturbances. Lifestyle of insomnia associated with sleep disorders is present in 83%, a very high percentage. Treatment of insomnia in the elderly appears to be essential regardless of the presence or absence of complaints for insomnia. For elderly patients, acupuncturists should provide thorough sleep hygiene instruction during treatment. The group with more effective acupuncture and moxibustion treatment for the chief complaint had a higher proportion of improved sleep status. Therefore, improvement of the chief complaint is essential.

Indicators for evaluating the effectiveness of acupuncture and moxibustion treatment include the Sleepscan and Actisleep, the OSA questionnaire for OSA, the Pittsburgh Sleep Quality Index, the Epworth Sleepiness Scale, the Insomnia visual analogue scale (VAS), a sleep-related consultation sheet. The Sleepscan and Actisleep estimate sleep state from body movements. In acupuncture and moxibustion treatment, the use of sleep diaries is in small numbers and the diaries are not well analyzed. Since sleep diaries are important in the diagnosis of sleep disorders for doctors of modern medicine, it is necessary to ensure that sleep diaries are more widely used. It is also desired for acupuncturists to fully analyze the contents of sleep diaries.

In the following cases, treatment should begin with sleep hygiene instruction from the initial treatment. 1. the symptoms of insomnia starts recently. 2. the cause of insomnia can be easily inferred at the interview stage. 3. the cause

of somnolence is clear and the time of onset can be determined.

If symptoms are long-term, sleep logs for several weeks are needed. Therefore, it is necessary to have the patient describe a sleep diary. Since sleep diaries can be useful in the treatment of chronic insomnia, hypersomnia, and sleep disorders by circadian rhythm disorder, it seems necessary to include the results of sleep diary description and analysis in the evaluation of acupuncture and moxibustion treatment efficacy. Several reports have used devices to estimate sleep state from body movements, sleep state cannot be correctly understood without EEG data. In the actual site where the treatment of sleep disorders takes place, polysomnography (PSG) is used. PSG measures not only body movements, but also EEG, electrocardiogram (ECG), snoring sounds, oxygen saturation, and eye movements simultaneously. Since good sleep requires that the brain rests well and the body rests peacefully, it is necessary to evaluate both the brain and body states at the same time. PSG requires the measurement in hospital. Portable sleep-monitoring devices, such as the Apnomonitor, which does not measure EEG, allow measurements to be taken at home. Some insomniacs have sleep-related breathing disorders such as OSA etc. In such case, the patient should be referred to a specialist for diagnosis at an early stage. Patients who complain of insomnia should have their insomnia analyzed using a special testing machine before acupuncture and moxibustion treatment.

When a patient complains of insomnia and visits an internist etc., he or she

may be immediately prescribed sleeping pills. However, the implementation of sleep hygiene instruction prior to medication is the first step in treating insomnia. Also in acupuncture and moxibustion treatment, patients who are unable to sleep must be given sleep hygiene instruction at the same time as treatment. Guidelines for sleep hygiene guidance have been issued by the Ministry of health, labour and welfare and the Japanese society of sleep research, then the treatment should refer the guidelines. When providing sleep hygiene guidance, patients should be divided into three age groups, such as young, middle-aged, and elderly, and appropriate guidance should be given after listening to their individual lifestyles. Moderate exercise is difficult to implement every day, if it is done every day. Therefore, even if the patients are busy, they should be encouraged to set aside an hour or so each day for walking, for example, 10,000 steps a day.

Hypersomnia is related to insomnia, in which the patient becomes extremely sleepy during the day. Narcolepsy, a sudden loss of strength from the body, belongs to the group of central hypersomnia. It can be differentiated not only by simply becoming drowsy, but also by the fact that weakness attacks take place, such as those that occur in rapid eye movement (REM) sleep when there are orexin deficiency and fluctuations in emotion. Therefore, it is important to interview the patient during acupuncture and moxibustion treatment.

In acupuncture and moxibustion treatment for children, there are complaints of symptoms such as crying at

night and waking up in the middle of the night to cry. In such cases, it is necessary to carefully inquire about the possibility of non-REM sleep entrainment disorders such as sleep apraxias. It is important to reassure the parents by explaining that the child may heal by natural healing power as he or she ages. Middle-aged or elderly patients who exhibit abnormal behavior in their sleep should not be left untreated. In such case, the patient should visit a specialist as REM sleep behavior disorder. REM sleep behavior disorder can be seen in cranial nerve degeneration such as Parkinson's disease and Lewy body dementia as well as in diseases with abnormal neurotransmission. The causative disease is identified by the examination of the brain for degeneration of the substantia nigra. The interview to a patient complaining of insomnia should be conducted on the premise that a variety of diseases hides in the insomnia, not just a lack of sleep.

In summary, 21% of adult people suffers from insomnia. In the elderly people over 60 years of age, the ratio of insomnia is reported to be more than 30%. Improvement of sleep status is important because sleep deprivation contributes to internal diseases and induces accidents due to decreased alertness. Acupuncture and moxibustion treatment is not clear to be effective, based on the evidence in the Cochrane Review. However, in the report of individual acupuncture and moxibustion treatment, time to fall asleep, nocturnal awakening, and sleep quality are improved. To prolong the effect, it is important to combine acupuncture and moxibustion treatment with self-care therapy such as press needles, pedestal moxa,

foot bathing, and auricular acupuncture. By suppressing muscle tension, insomnia is relaxed. It is possible to treat insomnia with acupuncture and moxibustion, when the muscles that are tense due to stress are relaxed by acupuncture and moxibustion. It is also possible to suppress insomnia by alleviating stiff shoulders and back tension. By introducing self-care to relieve muscle tension for the tense muscles, over a long period of time, it is possible to induce sleep quickly at home. It will be important to spread the information to the general public that acupuncture and moxibustion treatment before bedtime at an acupuncture clinic is effective for insomnia. Although the elderly complain of chief complaints other than sleep disturbance, 80% of them actually have sleep disturbances. Treatment of insomnia in the elderly appears to be essential regardless of the presence or absence of complaints for insomnia. For elderly patients, acupuncturists should provide thorough sleep hygiene instruction during treatment. The group with more effective acupuncture and moxibustion treatment for the chief complaint had a higher proportion of improved sleep status. Therefore, improvement of the chief complaint is essential.

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