

〔資料〕

## Traditional Medicine in Sleep Medicine

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(2020年10月21日受理)

**Abstract:** Sleep is a vital process that maintains the physical and mental conditions. Sleep disorders affect patient health conditions by disturbing stable sleep. Conventional medication is used with most sleep disorders, and traditional medicine is not often used in clinical practice in Japan, partially because of a lack of sufficient evidence. Literature related to the efficacy of traditional medicine for sleep disorders is reviewed here. Traditional Chinese medicine, herbal preparations, acupuncture, acupressure, and moxibustion have been shown to be effective with insomnia. Yokukansan (Yi-gan san) was reported to be effective for the treatment of insomnia, restless legs syndrome, and REM sleep behavior disorders with Lewy-body dementia. Use of these traditional medicine techniques may benefit some patients who are reluctant to take conventional medicine, or patients who have not been treated adequately with conventional medicine alone. Future prospects of traditional medicine in sleep medicine include establishing more evidence for the treatments, and involving more healthcare providers in treating sleep problems of the patients and here make use of traditional medicine techniques for the patient care to improve patient health conditions.

**Keywords:** Traditional medicine, sleep medicine, sleep disorders, integrative medicine

### Introduction

Sleep is a vital process that maintains the physical and mental state of life and sleep disorders are generally chronic and affect the patient health condition. Many people suffer from sleep disorders including insomnia, sleep apnea syndrome, hypersomnia, circadian rhythm sleep-wake disorders, parasomnias, and sleep-related movement disorders. Understanding of sleep disorders is increasingly common but still limited. More involvement of healthcare providers in the care of sleep problems could be able to improve the quality of life of patients. Although, conventional medications are widely used in the treatment of sleep disorders, some people may want to try some kind of traditional medicine such as traditional Chinese medicine, herbal medicine,

acupuncture treatment, or moxibustion. However, evidence for the treatment of sleep disorders with the traditional medicine is not always sufficient and prevents them from being widely used in practice. In the following, the category of sleep disorders and current literature of traditional medicine for the treatment of sleep disorders are reviewed to assist in improving the understanding of these issues among healthcare providers.

### I. Sleep Disorders

International Classification of Sleep Disorders (3rd edition) lists sixty-five sleep disorders and classifies them into six categories (American Academy of Sleep Medicine,

2014). Major sleep disorders clinically diagnosed and treated are summarized in **Table 1**.

## II. Traditional Medicine

Traditional, complementary, and integrative medicine is defined by the World Health Organization (World Health Organization, 2013). Traditional medicine is the sum total of the knowledge, skill, and practices based on theories, beliefs, and experiences indigenous to specific cultures, used in the maintenance of health as well as in the prevention, diagnosis, improvement, and treatment of physical and mental illness. Complementary medicine or alternative medicine refers to a broad range of health care practices that are not part of the tradition or conventional medicine of a specific country and are not fully integrated into the dominant health-care system. As they are used interchangeably with traditional medicine in some countries, we use the term “traditional medicine” in this review as a comprehensive term for these medical practices and medicines.

Traditional medicine is used in countries especially in Asia and Africa, however, the way traditional medicine is used in clinical practice differs greatly from country to country. We have visited Zambia, an suburban African country, and found that conventional medicine is available in the metropolitan areas and in cities away from the major urban areas, however, most people living in the countryside do not have access to hospitals and clinics and rely largely on traditional medicine therapists including Shaman practitioners who have some medical skills (Mori, et al. 2016). In Central Asia, we have found that traditional medicine is established as an independent department and specialist education in traditional medicine is provided here. In Mongolia, for example, a traditional medicine school is operated within the Mongolian Medical University and the traditional medicine department is collaborating with conventional medicine departments in daily clinical practice (Ehime University, 2020).

Ayurveda (an alternative medicine system in India), Yunani medicine (Perso-Arabic traditional medicine), and Traditional Chinese Medicine (TCM) are named as three major traditional medicine in the world. These traditional medicines influence other cultures and are sometimes mixed with each other. For example, traditional medicine in South-East Asia is often related to both Ayurveda and TCM. The Japanese traditional medicine, Kanpo, is often considered similar to TCM, but actually Kanpo medicine developed in

Japan based on TCM. Nowadays, a powder form of Kanpo medicines is widely used in medical practice in Japan.

Qualifications or licenses for practitioners using traditional medicine vary from country to country, and there is no universal “traditional medicine specialist” qualification. For example, in India, several levels of Ayurvedic professional certificate programs such as a Ayurvedic Wellness Practitioner certification program, National Ayurvedic Medical Association Certification, and Ayurvedic Doctor Certificate Program are provided, and a medical doctor license is not necessary to be certified as an Ayurvedic professional. In Japan, a Kanpo Specialist needs to be a medical doctor who has received sufficient training under the criteria determined by the Japan Society for Oriental Medicine and to have passed the examination provided by that organization.

## III. Traditional Medicine in Sleep Disorders

### 1. Insomnia

Insomnia is a common complaint in all kinds of clinical practice. Insomnia negatively impacts on the quality of life of patients, especially in severe cases.

Chinese medicinal herbs and formulas have been used in the treatment of insomnia for more than 2000 years in China, and has been widely used also in Western countries. Clinical studies show that a very wide spectrum of herbs are used in clinical treatment of insomnia (Ni et al., 2019). Most are identified as sedative and hypnotic herbs including Suanzaoren (*Ziziphus spinose*), Fuling (*Poria cocos*), Gamigui-bi-tang, and Gancao (*Glycyrrhiza uralensis*) (Singh & Zhao, 2017, Lee et al., 2018). The major pharmacological active agent of most sedative herbs is through the gamma-aminobutyric acid (GABA) neurotransmitter or by stimulating the GABAA receptor.

Yokukansan-ka-chimpi-hange (YKCH) is used for insomnia in Kanpo. YKCH has been shown to increase total sleep time significantly, and tends to increase sleep efficiency and stage 2 sleep, as well as it induces a decrease in sleep latency (time to fall asleep) and slow wave sleep, which is similar to the effect of benzodiazepine hypnotics (Aizawa et al., 2002).

Acupressure is a non-invasive treatment where pressure is applied to specific body points. In a meta-analysis of thirty-two randomized controlled trials, acupressure was shown to improve the subjective and objective sleep quality (Waits et al., 2018). A standardized treatment protocol for

acupressure specifies 3–5kg of pressure for one to five minutes per acupoint, delivered three to seven times a week for three to four weeks with the HT7 (Shenmen acupoint).

The effects of acupuncture treatment on insomnia has been reviewed (Cheuk et al., 2007, Guo et al., 2016, Lin et al., 2016, Yin et al., 2017, Guo et al., 2019). Acupuncture has been shown to be effective against insomnia and its complications, and is considered an effective and complementary method for the treatment of insomnia and associate maladies.

A meta-analysis of the effectiveness and safety of moxibustion for primary insomnia was reported (Sun et al., 2016). Twenty-two randomized controlled trials were reviewed and overall the meta-analysis demonstrated that moxibustion was more effective for insomnia than conventional medications, oral Chinese medicine and other TCM therapies. However, due to the insufficient quality of the studies, the authors found it difficult to reach this conclusion and more rigorous clinical trials of moxibustion therapy for insomnia is required.

The efficacy of Violet oil, a traditional Iranian formula for chronic insomnia was reported in a double-blind, placebo-controlled study (Feyzabadi, et al., 2018). The effectiveness of Ayurvedic oil-dripping treatment with sesame oil on sleep was reported (Tokinobu, et al., 2018). Use of traditional Persian medicine (TPM) was also reported (Nimrouzi et al., 2019). Traditional Persian medicine is also known as Unani medicine has its roots in Greek, Indian, Persian, and Egyptian medicine. Insomnia is considered as a disease and is called “sahar”, a complaint which disturbs the patient's functionality. Different types of insomnia are determined based on the cause of the insomnia, and a TCM treatment option is provided for each type.

## 2. Sleep Disordered Breathing

Sleep disordered breathing (SDB) include sleep apnea syndrome and snoring. Few reports have been published on SDB as most patients with SDB are treated mechanically with continuous positive airway pressure (CPAP) or an oral appliance. A report of a clinical trial from Taiwan (n=118) showed improvements in snoring, excessive daytime sleep, and quality of life (SF-36 score) by treatment with a compound formula SZ and concentrated herbal granules for four weeks (Wu et al., 2012).

## 3. Restless Legs Syndrome

Restless legs syndrome (RLS) is a disorder characterized by a complaint of an irresistible urge to move the limbs which is worse at rest, better with movement, and occur

predominantly in the evening or night. First line treatment of RLS is dopamine agonists, however, dopamine agonists may induce adverse events such as nausea and augmentation which is characterized by worsening of the symptom with chronic use of dopamine agonists.

Traditional Chinese medicine herbal preparations have been demonstrated to be safe and hold great potential to be an effective treatment modality for RLS but the evidence is still limited (Yan et al., 2012). Yokukansan (Yi-gan san) was reported to be effective for Japanese patients with RLS (Shinno et al., 2010, Horiguchi, 2012). We have reported a case of restlessness of the legs in pregnancy with twin babies complicated by hypertension which was successfully treated with aromatherapy in the lower limb (Takata et al., 2017).

## 4. REM Sleep Behavior Disorder

Clonazepam is an effective treatment of REM sleep behavior disorder (RBD) but poses the risk of muscular relaxation and oversedation. Preliminary trials of YKCH on RBD in dementia with Lewy bodies showed improvements in night-time behavior disturbance without notable adverse events (Manabe, 2020).

## IV. Future Prospects

Traditional medicine is an often underestimated part of health care. Many countries now recognize the need to develop an integrative approach to health care. The “WHO Traditional Medicine Strategy 2014–2023” was developed by WHO to harness the potential contribution of traditional medicine to health, wellness, and people centered healthcare as well as promote the safe and effective use of traditional medicine through the regulation of products, practices, and practitioners (World Health Organization, 2013). In light of the strategy, improving sleep and treating sleep disorders using the techniques of traditional medicine will surely benefit patients suffering from insomnia.

Traditional medicine is currently used mostly in insomnia but also for other sleep disorders such as SDB, RLS and RBD. However, due to insufficient evidence such as small sample size and population bias, further clinical trials of traditional medicine for sleep disorders are necessary. Several clinical trial protocols have been proposed to improve on this (Han et al., 2014, Cao et al., 2016, Guo et al., 2019, Ning et al., 2020). Collaboration between sleep specialists and traditional medicine specialists in clinical and research activity

could establish sufficient levels of evidence for the treatment of sleep disorders and may help the very numerous patients who are not adequately treated with conventional medicine alone.

As the future prospects of traditional medicine in sleep medicine, encouraging more involvement of healthcare providers into sleep medicine and making use of available traditional medicine techniques in clinical practice is beneficial. Establishing more evidence of the quality, safety, and efficacy could attract more healthcare providers using traditional medicine techniques for the care of assisting patients with sleep problems.

Not only the medication and specific techniques such as acupressure, acupuncture, and moxibustion, the essence of the Ayurveda technique, for example, may be useful in patients suffering from sleep disturbances. As Ayurveda is an approach to enhance health promotion used for both health promotion and treatment (Sharma, et al, 2007, Kumar and Gulia, 2016), some of the techniques such as aroma therapy, massage, and relaxation may be included in the patient care to promote health conditions of patients.

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**Table 1. Major sleep disorders**

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**Insomnia**

Chronic insomnia disorder

**Sleep Related Breathing Disorders**

Obstructive sleep apnea syndrome

Central sleep apnea syndrome

Sleep related hypoventilation disorders

Sleep related hypoxemia disorder

**Central Disorders of Hypersomnolence**

Narcolepsy

Idiopathic Hypersomnia

Kleine-Levin syndrome

**Circadian Rhythm Sleep-Wake Disorders**

Delayed sleep-wake phase disorder

Advanced sleep-wake phase disorder

Non-24-hgour sleep-wake disorder

**Parasomnias**

**Non-REM-related parasomnias**

Confusional arousals

Sleepwalking

Sleep terrors

**REM-related parasomnias**

REM sleep behavior disorder

**Sleep Related Movement Disorders**

Restless legs syndrome

Periodic limb movement disorder

Sleep related bruxism

Sleep related rhythmic movement disorder

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Summary of major sleep disorders included in the International Classification of Sleep Disorders, 3rd ed. (American Academy of Sleep Medicine, 2014)