

Understanding Insomnia from the Liver Based on Imagery Thinking

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Abstract: Insomnia is a common disease in a modern society with an accelerated pace of life, and its incidence covers the population Wide, has become a wide and profound social problem; at present, western drug treatment toxic side effects, therefore, small side effects and huge potential for insomnia treatment more and more attention and favor. The liver is just dirty, the main blood, Jue Yin liver is a length of diseases, liver internal viscera, the treatment of insomnia need to focus from the liver. Imagery thinking is the cornerstone of the development of traditional Chinese medicine, guiding the clinical medicine and acupoint selection of ancient doctors. Based on the traditional imagery thinking of traditional Chinese medicine, this paper summarizes and deeply explores the relationship between liver, liver meridian and insomnia, which provides a theoretical basis for preventing and controlling insomnia from the perspective of liver.

Insomnia often appears in ancient Chinese medical texts with words such as no sleep and eyes not dark. The Spiritual Pivot - Dazed Theory says: "Wei Qi is not allowed to enter Yin, but always stays in Yang. The descriptions of insomnia in the Treatise on Typhoid include not being able to sleep and not being able to sleep. Chinese medicine believes that the liver collects blood, which is wood, to nourish the heart and mind, and if the heart and mind are not nourished, sleep is restless. According to the table of midnight-noon and ebb-flow doctrine, the liver meridian is at its peak at the ugly hour, from 1:00 AM to 3:00 AM, which is the time when people are most likely to have sleep disorders, indicating that ancient medical practitioners recognized that the cause of insomnia is closely related to the liver, to see table 1.

Table 1. The table of midnight-noon and ebb-flow doctrine

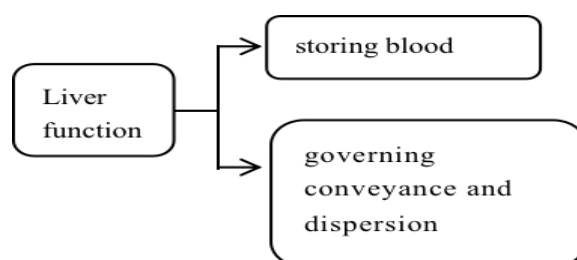
	Taiyang meridians	Shaoyang meridians	Yangming meridians	Shaoyin meridians	Jueyin meridians	Taiyin meridians
time	15.00-17.00	23.00-1.00	7.00-9.00	17.00-19.00	1.00-3.00	9.00-11.00
foot	Bladder	Gallbladder	Stomach	Kidney	Liver	Spleen
time	13.00-15.00	21.00-23.00	5.00-7.00	11.00-13.00	19.00-21.00	3.00-5.00
hand	Small Intestine	Triple energizer	Large Intestine	Heart	Pericardium	Lung

1. Imagery Thinking and Liver, Liver Meridian

The naming of the liver meridian and the liver cannot be separated from the simple and ancient philosophical idea of our country: imagery thinking. Imagery thinking is a subjective way of thinking that uses association, symbolism and analogy to reason out the abstract meaning of things on the basis of their objective existence [1]. Chinese medicine believes that the naming of internal organs is based on the anatomical image of internal organs and their corresponding external objects. The name of the liver is based on the Chinese character "Gan", and the pronunciation of liver also comes from the character "Gan". According to the "Interpretation of the Name", "Liver, dry, is also a wood in the five elements, so its body shape has branches and trunks", people will have wood characteristics of the function of the organs called liver, but does not refer to the liver alone, wood is the main growth, Shu hair, according to the characteristics of the five elements of wood to view things to take the imagery, so the physiological characteristics of the liver is like to strip up and evil depression, according to the imagery of the liver and liver The main physiological functions of the liver can be deduced from the imagery of the liver and the intuitive anatomical image of the liver, i.e., it is the main organ of drainage [2-3] and the main organ of blood collection.

The Su Wen - the theory of the true evil said: "The sage's starting degrees, must be in response to the heaven and earth, so the sky has a degree, the earth has the meridian water, people have the meridian". In ancient times, people mostly gathered by the river and compared the river with the human body through observation practice, which gave rise to the concept of meridians. He Yumin [4] has suggested that it is because of imagery thinking that meridian phenomena could be discovered. Zhang Canchen [5-6] believed that meridians can move qi and blood and harmonize yin and yang. And the liver and foot fructus meridian, starting from the hairy area of the big finger, up through the foot tarsus on the Lian out of the forehead, and the Governor meridian will be at the top The meridians can be internal organs and external limbs, the physiological functions of the internal organs and the normal operation of the meridians are inseparable, the normal function of the liver meridians is normal liver storing blood and governing conveyance and dispersion function.

Table 2. The table of liver function



2. Causes of Disease

2.1. Yang is Always in Excess and Yin is Always in Deficiency

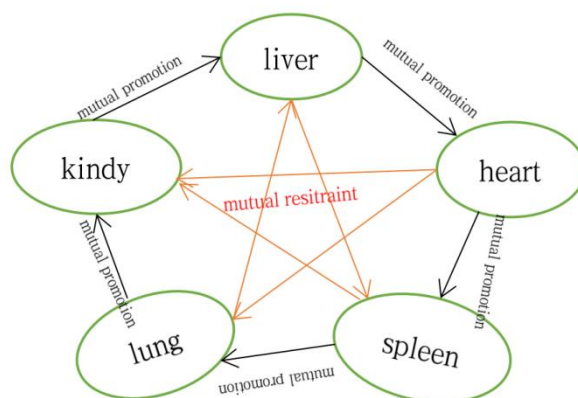
Insomnia is manifested as sleep disorder, which affects people's mood and emotion during the day, making them irritable and irritable, and may also be manifested as indifferent expression, not thinking about eating and drinking, etc. The liver is an organ that gathers the body's qi, blood, yin and yang in one body. Once the liver's qi, blood, yin and yang become abnormal, it can manifest insomnia on the outside. The cause of insomnia can be due to Yang Qi rising too much, Yang Qi in the body being hyperactive, Yang floating on the top, Yin not controlling Yang, and insomnia caused by the upper real and the lower deficiency. In addition, if the liver is not drained, it can't smooth the body's qi flow, and the surplus of qi is fire, because the long-term external living environment stimulation leads to emotional disorders, qi stagnation, qi stagnation can't be relieved, and the stagnation turns into fire for a long time, which can also lead to insomnia.

2.2. The Liver is the Main Reservoir of Blood, and it Helps the Soul to Sleep

In the Ling Shu Jing, "the liver collects blood, and the blood is the soul", and the soul is one of the five gods in the five elements and resides in the liver. Spiritual

On the other hand, the soul and essence and blood complement each other, the liver collects blood, blood is the material basis of the soul, and the soul is the external manifestation of the normal physiological function of the liver, which is the main reservoir of blood. Insufficient function of liver yin and blood collection, insufficient yin and blood, inability of yin to submerge liver and yang, and delusion of the soul will cause insomnia. Tian Kang [7] et al. used the method of resting the soul to treat insomnia with remarkable efficacy, proving that if the blood returns to the liver and the soul is hidden in the liver during night sleep, the liver blood sheds the soul and the soul has a residence, then the night sleep is peaceful.

Table 3. The table of generation-inhibition in five elements



2.3. Conjunctive Yin and Liver Wood, the Longest of All Diseases

In "Liuzhou Medical Talk", "the disease of emotion and will must be caused by the liver", and in "Knowing Medicine - On Liver Qi", there is a cloud: "the human organ, but the liver is easy to move but difficult to be quiet", "the liver is the thief of the five organs", the liver is a disease. The liver is a disease and can also cause insomnia by involving other internal organs. The liver can disturb the heart and lungs, and it can also rebel against the stomach. The "Blood Evidence - Organ

Disease Mechanism" says: "The nature of wood is mainly in the drainage, food gas into the stomach, all rely on the liver wood to drain the gas, and water and grain is transformed". If the earth gets the qi of wood, it will be unclogged. If the liver qi is stagnant, the qi will not be unclogged and will turn into fire for a long time, and the spleen and stomach will be offended, and the dysfunction of the spleen and stomach will lead to insomnia, just as "Suwen - the book of counter-regulation" says: "If the stomach is not in harmony, it is restless", so the dysfunction of the relationship between the liver and the spleen and stomach can cause insomnia. "The physiology of the liver and the heart are closely related, and the pathology also affects each other. If the Qi and blood of the heart are not sufficient, it will lead to sleeplessness, just as "Jin Kui Yao" said, "If the heart is deficient in Qi, the person will be afraid and will want to sleep with his eyes closed".

2.4. From the Foot to the Head, Connected to the Internal Organs

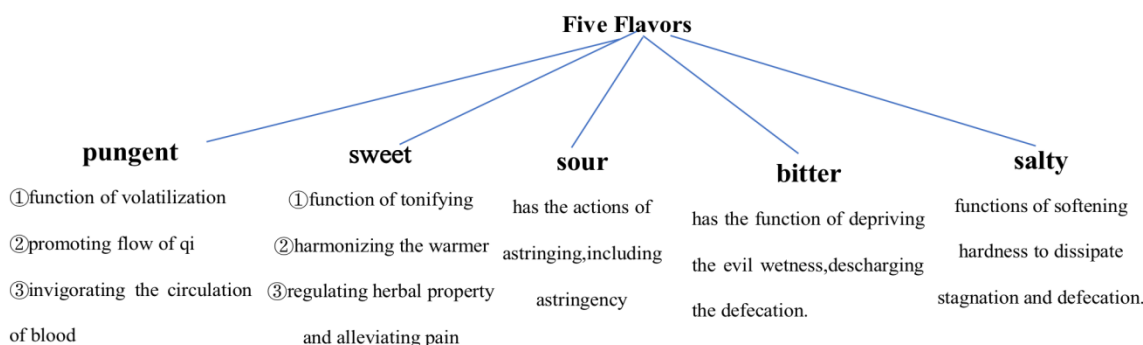
The Ling Shu - Jing Shui said: "The meridians receive blood and camp. Insufficient qi and blood of the liver meridian of convulsive yin, can not moisten the liver, or because of the liver meridian stagnation, liver physiological function abnormal, will lead to insomnia. The twelve meridians flow like rings without end, from the Taiyin lung travels in the shape to the veins of the Turk's Yin liver, and abnormalities in the liver meridian will also have an effect on other meridians. Using modern scientific research techniques and multidisciplinary cooperation, the relationship between the internal organs and meridians has also been studied more scientifically and extensively, such as the use of infrared imaging, bioinformatics extraction and fluorescein labeling methods and other new technologies, all of which can prove the role of meridians in bridging the internal and external. If the internal organs are related to the meridians, the liver meridians will be open, and the liver's function of draining and collecting blood will be normal.

3. Treatment

3.1. Wood Should not be Depressed, Need to Disperse the Peace of

Chinese medicine uses the five flavors, which can travel, pungent can disperse, and salty can soften, so in the treatment of insomnia, more pungent or salty products are used. In modern pharmacology, oyster has the effect of calming the liver and subduing yang [8]; insomnia caused by too much yang energy of the liver can be treated with products that converge yang into yin, such as Chai Hu and Long Mu; Wu Ju Ju is pungent in five flavors, and pungent can disperse and move, and modern research has shown that Wu Ju Ju regulates C-reactive protein (CRP), 5 Modern research has shown that Wu Zhu Yu can achieve a calming effect on sleep by regulating C-reactive protein (CRP), 5-hydroxytryptamine receptor (5-HT) and other key genes [9], and has outstanding clinical efficacy [10]. For the treatment of insomnia of the liver-depression and fire type, the formula should contain Chinese herbs such as Wu Zhuyu, Huang Lian, Yu Jin, Fu Shen, and Bai Zi Ren, etc. Clinically, the best efficacy is achieved with Dan Gardenia Prosperity San; Prosperity San is from the "Taiping Huimin and Pharmaceutical Bureau Formula", with strict legislation, and is a representative formula for draining the liver and strengthening the spleen, and Gui Spleen Tang can also benefit qi to treat insomnia, if the "Zhangshi Ben Cao": food therapy sour dates, flat. Mainly cold-heat knotted qi, calm the five viscera, and treat insomnia. Sour dates and sour dates can be used for the treatment of insomnia; if liver-blood stasis is blocked, Chinese herbs such as angelica and Chuanxiong are used.

Table 4. The table of five flavors



3.2. Combination Treatment of the Three Yins, With Emphasis on Nourishing and Regulating the Liver

The liver and foot sympathetic meridian is the pivot of the three yin, which can collect blood and nourish the heart and mind, and nourish kidney yin at the bottom. Zhao Jinying [11] et al. divided the patients into two groups, acupuncture Sanyinjiao and other acupuncture points, tested with Pittsburgh sleep index and polysomnography, and concluded that acupuncture Sanyinjiao is better to improve the sleep quality of patients. The liver and kidneys are of the same origin, and the kidney essence depends on the filling of liver blood; likewise, the liver functions normally, and the heart is the master of the mind, which is effective in maintaining normal sleep activities.

3.3. The Circulation of the Meridians Can De-Stress the Liver and Calm the Mind

The acupuncture points on the liver meridian can treat insomnia caused by the dysfunction of the liver. The combined application of these two points is known as the Yu-Hang method, in which the Liver Yu and the Periodic Gate work together to de-stress the Liver and regulate Qi to treat insomnia [12]. The Tai Chong point is the original point of the Jueyin Liver meridian and is also an important point for draining the liver and Qi, pacifying the liver and submerging the Yang, which is very useful for the diagnosis and treatment of liver diseases. Chen Jin [13] et al. found that acupuncture at the Tai Chong point also modulates brain function imaging in the ventral medial prefrontal lobe, which in turn regulates mood and de-stimulates liver and qi to treat insomnia.

3.4. Other Therapies

Cognitive behavioral therapy is now also widely used in the treatment of insomnia in clinical practice, and is the best modern extension of the treatment of insomnia based on imagery thinking, a good sleep environment, helping patients to develop a lifestyle, and intervening in certain ways to change patients' perceptions of insomnia and reduce their psychological burden of not being able to perform sleep activities at night so as to de-stress the liver and regulate qi, ultimately achieving the purpose of relieving the symptoms of insomnia. Cognitive behavioral therapy is effective in treating insomnia [14], and it is also commonly valued and applied in clinical treatment of insomnia at home and abroad.

The five elements of nature have been categorized by analogy, including five colors, five tones, five qi, etc. Five-tone therapy is a special therapy for treating diseases through the relationship between the characteristics of five ethnic tunes: Gong, Shang, Jue, Zhi, and Yu, and the five organs

and five elements. The "Jue tone" in the organs corresponds to the liver, and in the will corresponds to the anger, the liver body is yin and uses yang, the liver yang is easily hyperactive, the horn tuned music has the effect of de-stressing the liver and promoting the flow of Qi. It can treat liver diseases, which belong to the five elements of wood. The high and clear sound of horn tune makes people happy and relaxes liver qi, thus treating insomnia.

Table 5. The table of five elements correspondence

Five Elements	Five Viscera	Five Tones	Five Qi	Five Colors
wood	liver	Jue(do)	wind	green
fire	heart	Zhi(re)	heat	red
earth	spleen	Gong(mi)	humidity	yellow
gold	lung	Shang(sol)	dryness	white
water	kid	Yu(la)	cold	black

4. Example of Medical Cases

Case: The patient, male, 54 years old, was first diagnosed on August 10, 2021. Complaint: Intermittent insomnia for 4 years. History: 4 years ago, insomnia with no obvious cause, shallow sleep and easy awakening, diagnosis: insomnia, shallow sleep and easy awakening, dreamy, sometimes disturbed, easily irritated, dry mouth and bitterness, tinnitus, headache, tingling pain in the right temporal region, generalized, urination, dry stool, one line in 2~3 days, red tongue with yellow coating, string pulse. Traditional Chinese medicine diagnosis: Sleeplessness (liver stagnation and heat). Prescription: Dampi 10g, Gardenia 10g, Chai Hu 6g, Bai Shao 15g, Angelica 10g, Atractylodes 12g, Poria 15g, Glycyrrhiza 6g, Sour date palm 15g, Phellodendron 15g, Acorus calamus 12g, Yu Jin 10g, Yu Li Ren 10g, Flambe 12g. 5 doses, 1 dose daily, decoction with water to 400mL, warm in the morning and evening.

After the second consultation, the quality of sleep was slightly reduced after taking the medicine, with tingling pain in the right temporal region. 10g of Chuanxiong, 12g of Scutellaria baicalensis and 12g of Chaihu were added to the above, followed by 7 doses.

The third consultation, sleep is significantly better than before, now there is still occasional tinnitus, give the above plus Zhi Mu 10g, Huang Bai 10g. 2 months of consolidation treatment, the follow-up appeal symptoms did not recur.

5. Summary and Outlook

Imagery thinking is not only the source of Chinese TCM theory, but also the cornerstone of Chinese traditional medicine, and as the origin of ancient Chinese philosophy, it has deeply influenced Chinese culture[15]. The ancient medical practitioners based their thinking on the "Imagery" as the main basis, and made a systematic study and summary of human pathology and physiology, forming a relatively complete theoretical system of Chinese medicine, which is still in use today, providing a new way for the medical practitioners of that time and future generations to identify and use medicine, acupuncture and moxibustion, and explore the diversity of ways to treat insomnia. The treatment of insomnia based on "liver signs" has enriched the basis for treating

insomnia from the perspective of TCM, reflecting the diagnosis and treatment of TCM and the thinking of treating each person differently, and dialectical thinking is also one of the most characteristic ways of thinking in TCM. Compared with the toxic side effects of modern medical treatment, the green and safe treatment is more favored and accepted by everyone. Therefore, the treatment of insomnia can focus on "Liver Image", which is another treatment idea after "Heart Image" and "Spleen Image", providing a new basis for the treatment of insomnia.

The trend of cooperation between medicine and other multidisciplinary disciplines for the treatment of related diseases has been on the rise in recent years, and traditional Chinese medicine culture, as a part of Chinese culture, also has a long history and profound characteristics, but its development has lagged behind in recent years, so it is urgent to promote the modernization of Chinese medicine and the cooperation between Chinese medicine and other multidisciplinary disciplines to promote the development of Chinese medicine in the context of large science; for the study of the etiology of insomnia, traditional medicine has suggested a number of possibilities[16].The research on the causes of insomnia in traditional medicine has suggested a variety of possibilities: fire in the heart and liver, hyperactivity of liver and yang, disharmony of liver and spleen, and disorders of the spleen and stomach; at present, the development of TCM must take the original thinking of TCM as the starting point, and the imagery thinking is the traditional thinking of TCM, which is reflected in all aspects of life and science. In order to improve the efficacy and influence of diagnosis and treatment, the cooperation with other disciplines in the treatment of insomnia based on imagery thinking also deserves exploration and attention.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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