

Treatment of Hepatic Encephalopathy Based on the Theory of Five Zang-organs Xuanfu

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Abstract: The word "Xuanfu" first appeared in "Su Wen Shui Re Xue Lun", which said: "The so-called Xuanfu is also sweaty". It was first understood as a sweat hole, and later Liu Wansu inherited the ancient innovation. It was recorded in "Su Wen Xuan Ji Yuan Disease Type" that "the Xuanfu is also called a micro-Xuanfu." That is to say, its morphological structure Xuan Ming is subtle, which can not be seen by the naked eye; It is also pointed out that "the Xuanfu people have nothing, human viscera and fur, muscle fascia, bone marrow paws, and everything in the world has everything, which is also the gateway to the rise and fall of qi". It is pointed out that Xuanfu is a micro-channel with ubiquitous material connection, and qi and blood, body fluid, camp and health, and the operation of mental machinery are closely related to Xuanfu, and the Xuanfu is opened smoothly and closed reversely. At present, the theory of liver-intestine-brain axis is the most recognized theory in the pathogenesis analysis of hepatic encephalopathy (HE), which holds that the pathogenesis of HE lies in the liver, intestine and brain. Clinical application of the theory of liver, intestine and brain axis to treat hepatic encephalopathy has achieved very good results. Based on the theory of the five zang-organs Xuanfu in traditional Chinese medicine, this paper puts forward the micro-pathogenesis of hepatic encephalopathy caused by "the five zang-organs Xuanfu is unfavorable to open and close, and it interferes with the brain". On the basis of syndrome differentiation, the treatment pays attention to dredging Xuanfu and has achieved good results. The tutor thinks that the occurrence of hepatic encephalopathy is closely related to the brain and intestines, and also to the disorder of the opening and closing of the five zang-fu organs. In the treatment, the opening of the xuan-fu organs should be the key link, and then according to the severity of the depression of the intestines, the brain and the five zang-fu organs, respectively, the treatment should be based on dispersing the lung, clearing the heart, refreshing the brain, invigorating the spleen, eliminating dampness, warming the kidney and fixing the xuan, soothing the liver, relieving depression and opening the xuan, so as to give full play to the advantages of traditional Chinese medicine and improve the curative effect.

Keywords: Five zang-organs mysterious mansion, Hepatic encephalopathy, Treatment

Hepatic encephalopathy is a reversible severe neuropsychiatric syndrome occurring in the process of acute and chronic liver diseases, which is a brain dysfunction caused by hepatic insufficiency and or portosystemic shunt. Its mechanism is still unknown, but it has been proved that hyperammonemia, systemic inflammation and oxidative stress play an important role in this process.^[1] Studies have shown that neuropathological symptoms are caused by excessive accumulation of ammonia, which is transported to the brain through the blood-brain barrier (BBB), causing oxidative stress, inflammation and edema, and disrupting the function of neuron-glia, leading to the disorder of oscillation network in the brain.^[2-3] Typical symptoms include confusion, personality change, disorientation and low level of consciousness. The early stage is characterized by the inversion of sleep-wake mode or cognitive abnormality, the middle stage is characterized by varying degrees of lethargy and personality changes, and the late stage leads to hepatic coma and eventually death.^[4] Because of the difficulty in diagnosis, only HE with obvious symptoms can be treated routinely. At present, its treatment is mainly to reduce ammonia production, remove the produced blood ammonia and alleviate brain edema. Traditional Chinese medicine believes that this disease can be attributed to "liver syncope" and "syncope", and its main diseases are dampness, heat, phlegm, blood stasis, toxin, deficiency and wind. The pathogenesis is liver disease for a long time, lack of vital qi, stagnation of qi, stagnation of fire and wind, disturbance of the upper body to clear the orifices, and failure of Yuan Shen. More and more people also realize that the imbalance of liver, intestine and brain axis is closely related to the occurrence of HE. Zhang Sichao

first put forward the theoretical hypothesis of "brain-intestine communication"^[5]Zhang Jingzhou put forward the theory of "treating brain and intestine simultaneously". Mao advocated that the retention enema with rhubarb decoction was used to treat hepatic encephalopathy from the perspective of "dredging fu-organs to enlighten resuscitation and protecting liver", and the clinical effect was remarkable.^[6]In this paper, the experience of treating hepatic encephalopathy is discussed by combining the theory of five zang-organs and Xuanfu.

1. The Relationship between Liver Xuanfu and Five Zang Organs Xuanfu

Xuanfu, as a micro-channel of qi and blood, body fluid, ying Wei and Shen Ji, is properly opened and closed, and the ventilation of qi and liquid is the premise for the normal play of mental activities of the body; The stagnation of Xuanfu and the obstruction of gas-liquid circulation affect the normal operation of mental machinery, which is an important pathogenesis of abnormal mental activity of the body. Liu Wansu emphasized the importance of the ascending and descending of Qi-qi, and thought that the obstruction would lead to disease, the general principle would be safe, the pathogenesis would be depressed, and the theory of treatment would seek to open up, which reflected the meaning of "creating new things without stopping", which was the essence of Xuanfu theory "*Lingshu Pingren Juegu*". There is also a saying that "the spirit is up and down, the five internal organs are stable, the blood is harmonious, and the spirit is home." Modern medicine believes that the liver sieve structure composed of the fenestration of hepatic sinus endothelial cells is consistent with the liver's interior xuanfu in terms of microscopic structure, channel of material exchange and information exchange, etc. The liver sieve structure may be a channel for the liver to control the flow of qi and regulate the subtlety of qi. Xuanfu is subtle and widely distributed, and everywhere, except for the liver Xuanfu, all the five zang-fu organs also have Xuanfu. "The five zang-fu organs are not open and closed properly, and the five zang-fu organs lose what they have hidden." The mind is not hidden, the lungs are disturbed, the liver and soul are restless, the spleen is unwilling to give up, and the kidney is uneven, all of which can cause mental diseases in traditional Chinese medicine. This paper discusses the occurrence and treatment of hepatic encephalopathy from the perspective of the five zang-organs Xuanfu.

1.1 Xuanfu of Liver and Xuanfu of Lung and Intestine

The original meaning of Xuanfu was sweat holes and orifices, and then it was gradually derived into fur, acupuncture and finally extended as a channel for all qi, blood and body fluids to circulate. The lung xuanfu is a micro-channel throughout the lung system, which constitutes the outside of the lung system, the fur and the inside of the viscera. The large intestine conducts dross, and the intestinal xuanfu is the gateway for the movement of qi and body fluid, and it is also the channel for conducting dross. If the lung qi is released and lowered normally, the large intestine can conduct without any danger. There is a cloud in the Classic of Medicine: "The reason why the large intestine can conduct is that it is the fu-organ of the lung, and the lung qi is released, so it can conduct." Similarly, the normal conduction function of large intestine can also promote the declaration and decline of lung. Patients with hepatic encephalopathy develop chronic liver disease for a long time, which is caused by phlegm, damp heat, blood stasis, turbid toxin stopping, and accumulation of intestines and fu-organs, or patients with massive hemorrhage in upper digestive tract, and blood stasis accumulates in large intestine, which accumulates in intestines and fu-organs and becomes toxic for a long time. Intestinal Xuan fu is depressed, dregs can't stop gathering, fu qi is blocked, if the lower orifices are unfavorable, the upper orifices will be ignorant, the turbid yin will not fall, and the clear yang will not rise. On the one hand, the upper orifices will be obsessed with the brain, and the brain will lose its use, resulting in neurological and mental symptoms such as delirium, fainting and madness. Secondly, it affects the spreading of lung qi, and the circulation of qi, blood and body fluid is not smooth, ranging from nasal congestion, chest tightness, wheezing and shortness of breath to shortness of breath, inability to lie down, edema and palpitation, which is similar to hepatopulmonary syndrome in western medicine. Modern research also shows that there are a large number of bacteria and endotoxins in the intestine. Under normal circumstances, the intestinal barrier will isolate pathogenic substances, but the bile secretion of patients with hepatic encephalopathy is reduced, and the bacteriostatic effect is weak. In addition, the intestinal flora is out of balance, metabolites are increased, inflammatory and toxic substances are increased, and there is portosystemic shunt, and the plasma ammonia level in the circulatory system is increased, which enters the brain through the blood-brain barrier, producing neurotoxic effect and inducing HE.

1.2 Xuanfu of liver and Xuanfu of heart and brain.

"The pulse of the liver foot and Jue Yin ... goes up and down, and meets the governor pulse at the top." Su Wen's theory of "Bone-void" further states: "The governor of the meridian ... goes up to the forehead, crosses the apex and enters the collaterals and the brain ..." It shows that the liver and the brain meridians are related to each other, and "Learning from *"the West in Medical Enthusiasm on the Treatment of Liver Diseases"* records: "All the so-called brain-qi-muscle diseases in the West with epilepsy, madness, vertigo and cerebral congestion are related to the liver meridian" The liver governs the storage of blood, and the brain is the master of knowledge. God needs blood to nourish, and the liver governs the release of qi, blood and emotions. The brain is the master of the gods, regulating people's spirit, consciousness, thinking and psychological activities. At the same time, the brain is the master of all functions of the central and peripheral nervous systems. Qian Jinghu recorded in *"Strange Tales of Differentiation of Symptoms and Signs"*: "The system of covering the eyes, which goes down to the liver, actually belongs to the brain. If the brain qi is insufficient, the liver qi should respond to it, and the liver qi is too weak to respond to the brain ... The treatment method must greatly replenish the liver qi to make the liver enough to respond to the brain, then the liver qi is sufficient and the brain qi is also sufficient. " It shows that the liver governs the smooth flow of qi, and qi and blood are in harmony, so that the brain is clear and alert. In addition, "the brain is the sea of marrow", "the heart governs the blood and hides the spirit", essence can produce marrow, and essence and blood can produce each other. Brain marrow needs constant nourishing with painstaking efforts, so that it can be full of marrow and prosperous. "The mind governs the mind" and "the heart is the master of the internal organs". The mind is the leader and the brain is the treasury. Under the guidance of the heart, the heart and brain cooperate to complete various life activities that express "God". Therefore, when the body receives the information, judges and gives instructions, it is inseparable from the liver, brain and heart. However, although the gods are unpredictable, they also have their own running tracks. Liu Wansu pointed out that the gods of human beings patrol the passage of the whole body Xuan Fu, and the orderly opening and closing of the Xuan Fu and the smooth flow of gas and liquid are the keys to the operation of the gods. If the Xuan Fu is blocked, the functions of the gods and machines will be out of balance. Liu Wansu said in *"Su Wen Xuan Ji Yuan Disease"*: "If the disease is extremely hot, the qi and blood can't be communicated, and the gods are useless, but if they don't succeed, they will be depressed." If God is useless, Yuan Shen will be restless, unable to clear his mind, unable to know his knowledge, and his memory will decline, even he will faint.

1.3 Liver Xuanfu and Kidney Xuanfu

"Kidney stores essence, essence and ambition" Kidney stores essence, produces marrow, fills the brain, nourishes the yuan spirit, and controls thinking and memory. Liver stores blood, kidney stores essence, kidney essence and liver blood generate and transform each other, and liver and kidney essence and blood are homologous. The opening and closing of the Shenxuanfu helps the qi and liquid to circulate, and the essence in the kidney evaporates and vaporizes, which promotes the transport of body fluid along the Xuanfu. The clear one is transported to the lung and scattered all over the body, and the turbid one is turned into urine and injected into the bladder through the Shenxuanfu. The liver governs the drainage and the kidney governs the storage, and the storage and drainage are mutually used, but they complement each other. Dispelling liver qi can make the kidney open to a certain extent, while sealing the kidney can restrict the liver from discharging too much, so as to maintain its normal physiological function. The yang of liver and kidney can also warm and promote each other, so that the function of liver and kidney can play a normal role. Therefore, if the function of the kidney is normal, the kidney essence will be closed, the water and liquid will be sparse, the qi will be smooth, and the yin and yang will be balanced. Xuanfu Tongli is the basic condition for kidney to play its function of "storing essence and preserving ambition" Kidney stores essence and produces marrow, so as to nourish the mysterious house of the kidney and maintain its normal opening and closing function. Deficiency of kidney-qi, weakness of Xuanfu and inability to open and close, and difficulty in giving up the ambition of kidney, so it is easy to forget things, mental fatigue, stupidity and dementia, and distracted thinking. If the endowment is insufficient or the acquired disease lasts for a long time, the kidney essence and blood will be consumed, the Xuanfu will lose its nourishment, it will be closed due to deficiency, the spirit will lose circulation, the kidney will lose its glory, and it will be forgetful, slow thinking, indecisive, weak will and reduced execution. If the kidney water is insufficient, the deficiency fire is inflamed, the mysterious mansion is burned, and the kidney ambition is disturbed by the fire, and the kidney ambition is afraid of hyperactivity, and insomnia, dreaminess, suspicion, vigilance and anxiety are also common. Western medicine believes that the patients with hepatic encephalopathy are

aggravated by visceral hyperdynamic circulation, which significantly reduces systemic blood flow, and many vasodilators such as prostaglandin, nitric oxide, glucagon, endotoxin and calcitonin gene-related peptide cannot be inactivated by the liver, which causes systemic vascular bed dilatation and renal blood flow, especially renal cortex perfusion insufficiency, so renal failure with oliguria, anuria and azotemia as the main manifestations appears.

1.4 Spleen and stomach xuanfu

Those who know nine things are governed by five internal organs. All the five internal organs have stomach qi, which can promote diuresis. When the food enters the stomach, it overflows the essence, loses to the spleen, disperses the essence by the spleen, and returns to the lung, and the lung governs the declaration and descending, which distributes Shui Gu's essence to the organs and orifices of the whole body and excretes the products of viscera metabolism. The brain is the fu-organ of Yuan Shen, which mainly regulates the physiological functions of viscera and organs of the whole body. To play its functions, the brain orifices need to be nourished by Shui Gu, who is transported by the spleen and stomach. If the spleen and stomach diseases cannot be transformed into subtle organs to nourish the brain, the brain will lose its nourishment, and its consciousness will be unclear, resulting in dizziness, brain ringing and unconsciousness. Body fluid becomes the link between the stomach and intestines of middle jiao and the brain and orifices of upper jiao. If the middle energizer is deficient in qi and blood, phlegm and dampness are contained in it, and the deficiency of fire with phlegm and dampness will lead to restless mind, unclear mind, memory loss and even fainting. In addition, the spleen loses its health, the stomach loses its balance and falls, and the qi moves up and down, which will lead to the imbalance of intestinal flora. Intestinal flora disorder, endogenous or exogenous pathogenic bacteria proliferation, induce a large number of immune inflammatory factors, induce immune damage and local inflammatory reaction, promote the progress of HE, and affect the prognosis of the disease.

2. Treatment principle and treatment method

2.1 Dispelling lung and clearing intestine, dredging fu-organs and opening up mystery

Wang Mengying said in the Qing Dynasty: "It is the way to get rid of the evil from the fu-organs." Liu Wansu pointed out in *"Su Wen Xuan Ji Original Disease Type. Six Qi as Disease"*: "Those who are too hot to be opened should be treated with bitter cold medicine, and the heat will dissipate without stagnation. The so-called stagnation, which means the stagnation of qi and liquid can't be communicated, doesn't mean the stagnation of stool. "It clearly puts forward the theory of dredging fu-organs and opening the xuan. For those who commit crimes with obstruction of fu-organs, stagnation of lung and intestine, and turbid pathogen carrying poison, it is appropriate to use" purgative method "to clear the intestines, and restore the qi of the five internal organs and six fu-organs. The general principle of fu-organs and qi is dirty and safe, and the spirit will clear itself when turbid qi drops.

Radix et Rhizoma Rhei, Fructus Aurantii Immaturus, and Cortex Magnolia Officinalis are often used to detoxify and expel turbidity, dredge fu qi, clear up and reduce turbidity, and calm the mind. Scutellariae Radix, Bupleuri Radix, Paeonia lactiflora, Fructus Aurantii preparata, Radix Curcumae, Polygonum cuspidatum, etc. can also be used to regulate the ascending and descending of middle-jiao qi, and assist the opening and closing of fu organs. The application of this method in modern medicine includes retention enema, catharsis, etc. Its purpose is to increase gastrointestinal peristalsis, reduce the production and absorption of ammonia in the intestine of patients with hepatic encephalopathy, promote the excretion of ammonia, and reduce the damage of ammonia to brain tissue and nerves. Slightly use platycodon grandiflorum and Peucedanum praeruptorum to spread the lung, and treat the upper and lower parts together to help dredge and expel toxins.

2.2 Clear the heart, enlighten the mind, and open the mind.

The mysterious mansion of the heart is closed, and the mental machine is not used for going in and out. When the attack occurs, the symptoms are unclear and syncope, which belong to the category of "closed syndrome and syncope" in traditional Chinese medicine. The resuscitation drugs should be used in time. If the mind is confused due to blood stasis and heat in the camp, Yinchenhao Decoction, Wuwei Disinfection Drink and Rhinoceros Horn Dihuang Decoction should be used to give the evil a way, so that the heat toxin can be quickly discharged from the body, so as not to appear. If the heat

toxin is excessive and the heat enters the pericardium, Angong Niu Huang Pill should be used urgently to clear the heart, relieve fire and detoxify. The musk in the prescription is very strong, which has a strong effect of resuscitation and closure. Borneolum Syntheticum is an important medicine to wake up and return to the Soviet Union. It is pungent and fragrant, and its nature is cold and cool. It is a cool product and also has the effect of resuscitation. For those with excessive phlegm and confused phlegm, Acorus calamus and Yujin decoction is used to awaken the mind. In the prescription, Acorus calamus, Pinellia ternata and Arisaema cum bile focus on eliminating phlegm, while a small amount of bamboo shavings, dried tangerine peel and perilla are light, thin and fragrant. For those with excessive phlegm, Poria cocos and Fructus Amomi rotundus should be added to dispel dampness, clear phlegm and enlighten the mind.

2.3 Spleen-invigorating and dampness-resolving, spleen-nourishing and Xuan-opening

Acute and chronic liver function is seriously impaired, which leads to liver body damage, abnormal qi movement, disorder of ascending and descending, liver qi going against the wind, and taking the spleen and stomach as the mysterious mansion. The spleen and stomach are out of balance, for one thing, qi stagnation will not work, and for the other, the spleen and stomach are too damp and damp, so it is difficult to transport and transform the spleen and stomach, and it will be stagnant and produce phlegm. Shen Jin 'ao said that phlegm-dampness "is unpredictable for things, so it is harmful, from the top of epilepsy to the Yongquan, rising and falling with qi, all over the body, inside and outside, and all the internal organs." Treatment focuses on qi stagnation in spleen and stomach, eliminating dampness in spleen and stomach. For patients with severe qi stagnation, Bupleurum, Cyperus rotundus, Fructus Aurantii and Paeonia lactiflora are used to promote qi circulation and protect liver; For those with excessive phlegm and dampness, Rhizoma Atractylodis, Cortex Magnolia Officinalis, Fructus Amomi, Herba Eupatorii, Fructus Amomi, and Fructus Amomi are fragrant to eliminate dampness and turbidity, and for those with spleen and stomach deficiency, Radix Codonopsis, Atractylodis Macrocephalae, Radix Astragali, Rhizoma Pinelliae, and Rhizoma Dioscoreae are used to nourish the day after tomorrow to help preserve the source of qi and blood.

2.4 Warming kidney, consolidating xuan, and balancing yin and yang.

Prolonged liver disease consumes liver yin and liver blood, and maternal diseases also consume yin fluid of kidney. For a long time, the liver loses its nourishment, the kidney loses its nourishment, and even the yin essence is not full, and there is no way to control the yang, which causes hepatic encephalopathy. In the late stage of hepatic encephalopathy, both yin and yang are exhausted, and the spirit has no owner. The treatment is to replenish qi and nourish yin, restore yang and get rid of stagnation, and Shenfu Decoction combined with Shengmai Powder is used to add and subtract; If the yin is exhausted and the yang is lost, the treatment is to replenish qi and promote fluid production, save yin and converge yang, and only Shenfu Longmu Decoction or Dushen Decoction can be selected. Deficiency of fire combined with deficiency of yin and hyperactivity of yang are treated by nourishing yin and suppressing yang, calming the liver and waking up, and the prescription is antelope horn decoction combined with diaphragmatic Zhuyu decoction. Yin deficiency and hyperactivity of yang, deficiency of fire and blood stasis, antelope horn decoction combined with diaphragmatic Zhuyu decoction was selected to modify.

2.5 Soothes the liver, relieves depression, and regulates blood and resuscitation.

There is a saying in "*Su Wen, Dirty Qi Method*": "The wind is obscene in the interior, and the treatment is cool and bitter; In the treatment of liver diseases, we should pay attention to purging the liver to make up for the deficiency of the liver body. "Wind medicine can disperse the Xuan Xin, and the general principle of Xuanfu can restore the function of spleen and stomach ascending and clearing up and descending turbidity or distinguishing turbidity in intestines and fu organs. Wind medicine can still be cited and reported, while adjuvant treatment of spleen and stomach diseases, treatment of digestive tract mucosal diseases, and compatibility of wind medicine can achieve good results. Radix Bupleuri, Fructus Aurantii, Pericarpium Citri Reticulatae Viride, etc. are used to stimulate and regulate qi, and acid drugs such as Paeonia lactiflora, Cortex Moutan, Fructus Schisandrae Chinensis, Cornus officinalis, etc. are used to restrain the liver, so that the qi can be lifted and dispersed without damaging yin and blood, and there is no worry about restraining evil spirits and retaining bandits. Paeonia lactiflora can nourish the liver, and if the liver is nourished, the liver qi will be relaxed.

3. Summary

The pathogenesis of hepatic encephalopathy is still unknown, but it is always a brain lesion caused by acute and chronic liver diseases. This paper is mainly based on the stagnation of the five internal organs, turbid qi disturbing the gods, blinding the clear orifices, and the stagnation of the mysterious organs of the brain, resulting in brain symptoms such as dizziness, madness, delirium and even ignorance. Combined with the theory of five zang-organs Xuanfu, this paper puts forward the microscopic pathogenesis of hepatic encephalopathy caused by "the five zang-organs Xuanfu is unfavorable to open and close, which interferes with the brain". On the basis of syndrome differentiation, we should pay attention to dredging Xuanfu in order to give full play to the advantages of traditional Chinese medicine and provide new thinking for the treatment of hepatic encephalopathy.

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