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A Discussion on the Treatment of Restless Legs Syndrome from the Perspective of the Liver, based on the Liver's Role in Storing Blood and Housing the Soul

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Abstract: ***Restless Legs Syndrome (RLS), a common sensorimotor disorder of the nervous system, substantially compromises patients' quality of life and sleep integrity. Within the framework of Traditional Chinese Medicine (TCM), the theory that "the liver stores blood and houses the soul" provides a distinctive lens for understanding the pathogenesis and therapeutic strategies of RLS. In this paper, the theoretical connotations of this principle were thoroughly analyzed, and the association between RLS and dysregulated hepatic physiological and pathological functions was systematically explored. Various liver-based therapeutic approaches were elaborated, including the methods of nourishing Liver blood, soothing Liver qi, pacifying Liver yang, and clearing Liver heat, along with the corresponding formulas and herbal applications. The clinical efficacy of these strategies was substantiated by case studies. Collectively, this review aims to furnish novel insights and a robust theoretical groundwork for the precise and effective clinical management of RLS in TCM practice, thereby broadening the therapeutic horizons of TCM for this disorder.***

Keywords: Restless legs syndrome, The liver stores blood, The liver houses the soul.

1. Introduction

Restless Legs Syndrome (RLS) is characterized by an unbearable discomfort in the legs and a strong urge to move them—symptoms that worsen at rest, are partially relieved by activity, and frequently result in severe sleep disruption as well as significant interference with daily functioning. There remain limitations in the current understanding of its etiology and the available therapeutic options within modern medicine. Traditional Chinese Medicine (TCM), grounded in its holistic framework and the principle of syndrome differentiation and treatment, offers alternative pathways for addressing this condition. The longstanding theory that "the liver stores blood and houses the soul" merits renewed attention; a thorough comprehension of its essence and a systematic exploration of its relationship with RLS may contribute to the refinement of diagnostic and treatment paradigms, with the potential to enhance therapeutic outcomes.

2. Overview of RLS

RLS is characterized by unpleasant leg discomfort and an intense urge to move the legs, symptoms that are particularly pronounced at rest and frequently prompt patients to engage in repetitive leg movements. These manifestations severely disrupt nocturnal sleep and, over time, may give rise to psychiatric and somatic comorbidities, including anxiety and depression [1]. In clinical practice, because patients with RLS typically lack a history of traumatic nerve injury, the etiology is often attributed to sensorimotor abnormalities associated with conditions such as painful muscle cramps, depression, or anxiety—muscle spasms and psychological factors being the more common and intuitively considered triggers. However, this conventional diagnostic approach frequently results in missed or delayed diagnosis of RLS; both the rates of misdiagnosis and underdiagnosis remain persistently high, thereby compromising timely and accurate patient management and recovery [2].

Epidemiological data indicate a prevalence of 7–10% in the general adult population of Europe and the United States [3], with a higher predilection in women—a risk that escalates with parity [4–5]. Prevalence also increases among adults aged over 40 years, and has been estimated at 18–23% in the elderly population [6]. Although some reports suggest a progressive rise in prevalence with advancing age [7], one study observed a decline after 64 years [8]. Notably, RLS is also relatively common in children and adolescents, affecting 1–4% of this demographic [9]. Despite the substantial overall prevalence, the majority of patients experience mild to moderate symptoms, with only approximately 1–3% exhibiting severe and frequent manifestations [10]. Regional disparities are evident, with lower prevalence observed in Asia (1.0–7.5%) and Africa (0.037%) [11]. A recent meta-analysis has estimated the global prevalence at 5–8% in the general population, with most cases being mild and an age-related increase in symptom prevalence [12].

Current Western medical management of RLS primarily targets putative underlying mechanisms, including dopaminergic neuron dysfunction and iron metabolic disturbances [13–14], with therapeutic regimens commonly comprising dopamine agonists and α2δ calcium channel ligands [15–17]. Although these agents may provide symptomatic relief to a certain extent, their clinical utility is constrained by several non-negligible limitations. These include a high propensity for symptom recurrence, the risk of drug dependence with long-term administration, and the potential for serious adverse effects that impose additional physical burdens and compromise overall health status. In

contrast, traditional Chinese medicine (TCM) has demonstrated distinctive advantages in the management of RLS, as corroborated by a substantial body of clinical practice and observational data [18–19] indicating that TCM interventions achieve favorable therapeutic outcomes [20]. Grounded in the holistic framework and the principle of syndrome differentiation and treatment, TCM emphasizes the restoration of internal homeostatic balance through multidimensional therapeutic strategies, thereby offering a promising adjunctive or alternative approach to RLS management and expanding the therapeutic landscape for this challenging condition.

Examination of ancient Chinese medical literature reveals that, although no disease entity exactly corresponding to RLS has been documented, numerous descriptions of analogous symptomatology are preserved. In Neike Zhaiyao (Essentials of Internal Medicine), Xue Ji of the Ming Dynasty observed: "At night, sleep is scanty, with a sour and hot sensation in the feet. When this sourness persists and sleep eludes, the same feeling extends to the legs, accompanied by a sensation of cramping in the tendons, such that both legs shift restlessly from side to side without repose, until exhaustion finally brings sleep." Similarly, Zhang Zhongjing, the renowned Eastern Han Dynasty physician, recorded in his Jinkui Yaolüe (Essentials of the Golden Cabinet): "Those of noble status, with fragile bones and robust flesh, who perspire readily after fatigue and toss about in bed, may succumb to this disorder upon exposure to a mild draft"—a passage that has furnished valuable historical clues for subsequent generations of medical scholars. Synthesizing TCM theoretical principles with clinical observations, the majority of TCM practitioners, following careful evaluation [21], have reached a consensus that RLS should be classified within the TCM diagnostic categories of "Bi Syndrome" (arthralgia) and "Leg Wind" (Tui Feng). Such classification is conducive to an in-depth investigation of the underlying etiology and pathogenesis, facilitates the precise formulation of individualized diagnostic and treatment protocols, and provides a robust theoretical foundation for TCM-based management of RLS.

3. Origins and Implications of the Theory That the Liver Stores Blood and Houses the Soul

3.1 Theoretical Origins

The concept of "the liver stores blood" (gan cang xue) was first documented in the Huangdi Neijing (The Yellow Emperor's Inner Canon). The Lingshu: Ben Shen (Miraculous Pivot: The Spirit) states: "The liver stores blood, and the blood houses the soul" (gan cang xue, xue she hun)—a passage that established the theoretical foundation and underscored the intrinsic interrelationship among the liver, blood, and the soul. The Suwen: Generation of the Five Zang Organs (Plain Questions: Formation of the Five Viscera) further notes that "when one lies down, the blood returns to the liver," describing the physiological process by which blood flows back to the liver during sleep for storage, purification, and renewal. The Nan Jing: Difficulty 42 (Classic of Difficult Issues, 42nd Difficulty), attributed to the Eastern Han Dynasty, records: "The liver weighs four jin and four liang; it has three lobes on the left and four on the right, totaling seven lobes… It is responsible for housing the soul." Building on the Inner Canon, this text accentuates the liver's role in housing the soul, juxtaposing blood storage and soul housing to delineate the liver's physiological functions, with blood serving as the material substrate of the soul and the soul representing the psychic activity engendered by the liver's blood-storing function—the two being interdependent and mutually foundational.

Sun Simiao, in his Beiji Qianjin Yaofang (Essential Prescriptions Worth a Thousand Gold for Emergency), frequently advocated for hepatic protection in the management of blood disorders. Qian Yi, in his Xiao'er Yaozheng Zhijue (Key to Diagnosis and Treatment of Pediatric Diseases), applied the principle of "the liver stores blood and houses the soul" to the treatment of infantile convulsions and epilepsy. Zhang Jiebin, in the Leijing: Zangxiang Lei (Classified Canon: Visceral Manifestations), elucidated: "The term 'soul' (hun) refers to conditions such as dreaming, drowsiness, and a state of hazy, shifting, wandering consciousness." By characterizing the nature of the soul and linking it to hepatic blood storage, Zhang emphasized that the sufficiency or deficiency of liver blood determines the stability of the soul: when liver blood is abundant, the soul resides peacefully, resulting in sound sleep without disturbing dreams and a composed mental state. Li Zhongzi, in his Yizong Bidu (Required Readings for the Medical Tradition), observed: "The Wood of the East—there is no deficiency that cannot be replenished; to tonify the kidney is thus to tonify the liver. The Water of the North—there is no excess that cannot be drained; to drain the liver is thus to drain the kidney." Grounded in the Five Elements' cycle of generation and restriction, this perspective explicates the interconnections between nourishing the liver to store blood and the functional status of other viscera. By integrating the holistic zang-fu framework, it advocates a synergistic strategy of regulating kidney function to support hepatic blood storage, thereby comprehensively sustaining systemic homeostasis.

3.2 Conceptual Elucidation

The hepatic function of storing blood encompasses two principal dimensions. First, it pertains to the storage of blood volume: during periods of physical rest, a proportion of the systemic blood is sequestered within the liver, as articulated in the Suwen: Wuzang Shengcheng Pian (Plain Questions: Generation of the Five Zang Organs): "Therefore, when one lies down, the blood returns to the liver"—a process that sustains the dynamic equilibrium of circulating blood volume. Second, it involves the regulatory distribution of blood: when the organism engages in physical exertion or activity requiring augmented blood supply, the liver promptly releases stored blood to nourish the zang-fu viscera, meridians, and the extremities. Hepatic blood storage thus constitutes a pivotal physiological function, underscoring the liver's specialized role in the retention, modulation, and allocation of blood. As noted in the Suwen: Jingmai Bielun Pian (Plain Questions: Separate Treatise on the Meridians): "The essence of food enters the stomach; its refined portion is dispersed to the liver, and the surplus qi pervades the sinews." Dietary nutrients, after transformation into essential substances, are received by the liver, where a portion is converted into hepatic blood to nourish the sinews and vessels, thereby participating in the regulatory dynamics of blood volume.

The proposition that "blood houses the soul" (xue she hun) accentuates the intimate nexus between hepatic blood and the soul (hun), with the latter depending on adequate hepatic blood for its tranquil abode—a cornerstone of the TCM theoretical framework pertaining to mental and emotional activities. As Zhang Jiebin expounded in the Leijing: Zangxiang Lei (Classified Canon: Visceral Manifestations): "The term 'soul' (hun) refers to conditions such as dreaming, drowsiness, and a state of hazy, shifting, wandering consciousness—all of these are encompassed within this definition."

The doctrine that "the liver stores blood and houses the soul" permeates TCM clinical practice, from diagnosis through treatment. This theoretical construct enables practitioners to apprehend the interconnections among qi, blood, and spirit (shen) from a holistic vantage point, thereby guiding the process of syndrome differentiation and therapeutic intervention. It embodies the integrative wisdom of traditional Chinese medicine—the unified perspective on zang-fu viscera, essence (jing), qi, and spirit—and furnishes valuable theoretical reference for the contemporary clinical management of psychosomatic and neuropsychiatric disorders. 4 The Physiological Connection Between Restless Legs Syndrome and the Liver's Role in Storing Blood and Housing the Soul

4. The Function of the Liver in Storing Blood and Its Relationship to Restless Legs Syndrome

4.1 Hepatic Blood Storage Function and Restless Legs Syndrome

Blood nourishes the sinews and vessels: The liver stores blood, which plays an indispensable role in nourishing the sinews and vessels of the extremities. From the perspective of meridian pathways, the Foot Jueyin Liver Meridian descends to the lower limbs and is directly involved in the distribution of qi and blood in the legs. The Lingshu: Jingmai (Miraculous Pivot: Meridians) records: "The Foot Jueyin Liver Meridian… follows the medial aspect of the thigh, enters the pubic region, encircles the external genitalia, and reaches the lower abdomen." Liver blood nourishes the lower limbs along this meridian course; when the liver fails to perform its blood-storing function adequately, deficiency and stasis of qi and blood within the meridians may ensue, giving rise to abnormal sensory phenomena in the lower extremities. Ye Tianshi, in his Linzheng Zhinan Yian (Clinical Guidelines with Case Commentaries), repeatedly addressed the relationship between the liver and the limb meridians, emphasizing the importance of nourishing liver blood to harmonize the collaterals—thereby substantiating the decisive role of hepatic blood in maintaining normal lower limb function. The Song dynasty compendium Shengji Zonglu (General Collection for Relief of the Afflicted) states: "When blood is deficient, sensation is lost; this manifests as numbness of the body and pain in the joints." The distressing limb sensations characteristic of RLS—including soreness, numbness, distending pain, and crawling paresthesia—are consistent with the theoretical tenet that "blood deficiency gives rise to sensory loss." When liver blood is insufficient, the sinews and vessels are deprived of adequate nourishment, predisposing to a spectrum of abnormal leg sensations frequently reported by RLS patients.

Regulation of blood volume distribution: Through its blood-storing capacity, the liver also modulates the distribution of blood volume. In response to changing bodily activity states, the liver allocates stored blood to various regions according to physiological demand. Impairment of this regulatory function may result in inadequate or compromised blood supply to the lower extremities under specific conditions. In the Qing dynasty, Wang Qingren, in his Yilin Gaicuo (Corrections in Medical Literature), emphasized the pathogenic significance of blood stasis and proposed the concept that "blood stasis gives rise to unusual diseases." Given that RLS is often a chronic and refractory condition, its pathogenesis frequently involves blood stasis secondary to dysregulated hepatic blood storage—a state in which neither new blood is generated nor old blood cleared, leading to meridian obstruction by static blood and the formation of a vicious cycle. Formulas such as Xuefu Zhuyu Decoction (Blood Depot-Expelling and Stasis-Removing Decoction), which activate blood circulation, resolve stasis, and promote the free flow of qi and blood, may be rationally modified to improve lower limb perfusion in patients with long-standing RLS.

4.2 The Function of the Liver in Housing the Soul and Restless Legs Syndrome

Tranquil soul ensures sound sleep: The soul (hun) resides in the liver; when it remains calm and well-anchored, the body attains restful sleep—a state of physiological normality. The Leijing: Zangxiang Lei (Classified Canon: Visceral Manifestations) states: "The term 'soul' (hun) refers to the states of dreaming and reverie, as well as the ever-shifting, wandering realms of consciousness." Sleep disturbance constitutes a cardinal feature of RLS, the root cause of which frequently lies in the liver's failure to house the soul adequately, resulting in a state of psychic restlessness. The Jingyue Quanshu (Complete Works of Zhang Jingyue) observes: "When blood is deficient, the heart cannot be nourished; when the heart is deficient, the spirit cannot be retained in its abode." When liver blood is depleted, the soul lacks a secure "dwelling place" and roams without repose, manifesting as superficial sleep and fragmented, tumultuous dreaming. The leg symptoms of RLS become increasingly pronounced as night falls, a phenomenon attributable to the fact that at night—when blood should be stored in the liver—the organ is instead "preoccupied" with its own insufficiency, leaving neither adequate resources to nourish the soul nor sufficient moisture to sustain the sinews. Consequently, the lower limb muscles and tendons are subject to frequent involuntary twitching, driven by the dual insults of a perturbed soul and deficient sanguine nourishment.

Soul disturbance and limb restlessness: The Linzheng Zhinan Yian (Clinical Guidelines with Case Commentaries) repeatedly emphasizes that emotional dysregulation and impeded qi movement compromise the liver's draining and dispersing functions, thereby depriving the soul of its proper anchorage and precipitating erratic psychic activity. Patients with RLS frequently experience unexplained soreness, distension, stabbing pain, and crawling paresthesiae in the

lower limbs at rest, compelling them to move or change position incessantly in search of relief—a clinical picture that may be conceptualized as a "restless" soul agitating the lower extremities. From a meridian perspective, the Foot Jueyin Liver Meridian courses downward through the legs; as documented in the Lingshu: Jingmai (Miraculous Pivot: Meridians): "The Liver Foot Jueyin Meridian… follows the medial aspect of the thigh, enters the pubic region, encircles the external genitalia, and reaches the lower abdomen." Liver blood and the liver soul nourish the lower limbs via this pathway. Zhu Danxi articulated: "When qi flows smoothly, blood circulates freely; when qi is stagnant, blood stasis ensues." In the setting of liver depression and qi stagnation, blood flow becomes impeded and pools in the lower limb meridians; the soul, deprived of the support of freely circulating qi and blood, further exacerbates lower limb restlessness, thereby establishing a self-perpetuating vicious cycle.

5. The Pathological Connection Between Restless Legs Syndrome and the Liver's Functions of Storing Blood and Housing the Soul

5.1 Deficiency of Liver Blood and Insufficient Nourishment of Tendons and Vessels

The Suwen: Weilun Pian (Plain Questions: Treatise on Atrophy) states: "The liver governs the sinews and fascia of the body… When liver qi is hot, the gallbladder secretes bile, causing a bitter taste in the mouth; the sinews and fascia become dry; when they are dry, the sinews contract and tighten, giving rise to sinew flaccidity (jin wei)." Factors such as improper diet, chronic blood loss, and protracted illness with consequent consumption of vital resources may readily result in liver blood deficiency. When liver blood is insufficient, it fails to adequately perfuse the lower extremities; the sinews, vessels, muscles, and integument of the legs lose their moistening and nourishing support, progressively engendering a range of discomforts, including soreness, distension, numbness, stabbing pain, and a crawling paresthesia (formication). Moreover, during nocturnal recumbency, as blood returns to the liver for storage, the blood supply to the lower limbs is relatively diminished, rendering these symptoms particularly conspicuous [22–23]. These manifestations correspond precisely to the typical clinical presentation of RLS—namely, the worsening of symptoms at rest and during sleep onset, when blood is sequestered in the liver and peripheral perfusion is correspondingly reduced.

5.2 Stagnation of Liver Qi and Impaired Blood Circulation

The Suwen: Judong Lun (Plain Questions: Treatise on Pain) states: "I have learned that all diseases originate from disorders of qi. Anger causes qi to rise; elation causes qi to relax; grief causes qi to dissipate; fear causes qi to descend; cold causes qi to contract; heat causes qi to disperse; fright causes qi to become deranged; overexertion causes qi to be depleted; and excessive rumination causes qi to become obstructed." Emotional depression, anxiety, and acute life stressors may impair the free dispersion of Liver qi, leading to its stagnation within the body. When qi movement is obstructed, blood circulation is correspondingly hindered, culminating in the generation of blood stasis that accumulates in the lower limb meridians. Consequently, the flow of qi and blood becomes sluggish, manifesting as a sensation of tightness and distending pain in the legs—discomfort that may be temporarily alleviated by moderate physical activity through the promotion of qi and blood flow. Moreover, Liver qi stagnation frequently disturbs the spiritual and mental state, rendering patients irritable, anxious, and prone to insomnia, which in turn exacerbates the lower limb symptoms in a reciprocal manner [24–25]. Given that qi serves as the forerunner and motive force of blood, impeded Liver qi inevitably compromises blood circulation, leading to stasis accumulation in the lower limb meridians and depriving the region of adequate qi and blood nourishment. This pathophysiological sequence gives rise to a sensation of stuffiness and stabbing pain in the legs, which is partially relieved by movement—a pattern consistent with the cardinal feature of RLS, namely the worsening of symptoms at rest and their amelioration with activity.

5.3 Excessive Liver Yang Disturbing the Spirit

The Suwen: Zhi Zhen Yao Da Lun (Plain Questions: Great Treatise on the Essentials of Truth) states: "All wind-induced dizziness and vertigo are attributed to the liver." A constitutionally excessive yang disposition, prolonged repressed anger, or intemperance in sexual activity may give rise to liver yang hyperactivity, causing it to escape its normal restraint. When liver yang transforms into wind—and wind, being kinetic in nature—it may invade the sinews and meridians of the lower limbs, provoking muscle twitching, spasm, and rigidity. Simultaneously, liver fire may ascend along the meridian pathways to disturb the mind and spirit (shen), resulting in psychic restlessness and fragmented sleep. The clinical course of the condition tends to fluctuate markedly in response to emotional vicissitudes and irregularities in daily routine [26–27]. Alternatively, against a background of preexisting liver-kidney yin deficiency, intense emotional provocation may trigger an excessive ascent of liver yang. When yang hyperactivity evolves into internal wind, the combined force of wind and yang disrupts the tranquil abode of the soul (hun), causing it to wander. Affected patients present not only with lower limb discomfort but also with concomitant manifestations including irritability, insomnia, dizziness, and tinnitus. During the nighttime hours, as yang fails to descend and merge with yin, the leg symptoms and sleep disturbance mutually aggravate each other, thereby perpetuating a vicious cycle.

5.4 Raging Liver Fire Scorching Yin and Blood

Zhu Zhenheng, in his Danxi Xinfa (Danxi's Heart Method), observed: "An excess of qi transforms into fire." Excessive consumption of pungent and hot-natured foods, or the transformation of suppressed anger into internal fire, may give rise to blazing liver fire. When liver fire blazes internally, it exerts a dual pathogenic effect: first, it scorches and depletes liver blood, thereby compromising the organ's blood-storing function and its capacity to supply nutritive resources; second, it descends along the meridians to perturb

the flow of qi and blood in the lower limbs, manifesting as a burning sensation and pain in the legs, accompanied by irritability, dry mouth, and a bitter taste—features that collectively exacerbate the clinical presentation of RLS. In cases where yin fluids have been severely depleted following febrile illnesses, or where protracted liver-kidney yin deficiency has led to profound consumption of liver yin [28], the liver loses its moistening support, giving rise to internal wind of the deficiency type. This, in turn, causes the sinews and vessels to lose their restraining control, resulting in leg cramps and frequent tremors, accompanied by crawling paresthesiae (formication), burning sensations, and pruritus. Moreover, yin deficiency predisposes to hyperactivity of fire, which ascends to disturb the spirit (shen), culminating in insomnia, profuse dreaming, night sweats, and tidal fever—a constellation of symptoms that is highly concordant with the characteristic clinical features of RLS, namely its propensity for nocturnal exacerbation and its prominent neuropsychiatric comorbidities.

6. Clinical Strategies for Treating Restless Legs Syndrome Based on Liver Theory

6.1 Tonifying Liver Blood and Nourishing Tendons and Vessels to Relieve Spasms

The principal herbal agents employed in this therapeutic approach include Bai Shao (Paeoniae Radix Alba), Dang Gui (Angelicae Sinensis Radix), Shu Di Huang (Rehmanniae Radix Praeparata), and E Jiao (Asini Corii Colla). Bai Shao, possessing a sour and sweet flavor, engenders yin, nourishes blood, pacifies the liver, and relieves spasm and pain, thereby effectively alleviating lower limb cramping. Dang Gui tonifies and activates blood, unblocks the meridians and collaterals, and directs the actions of the accompanying medicinals to the lower extremities. Shu Di Huang nourishes yin, enriches blood, replenishes essence and marrow, and consolidates the foundational basis of hepatic blood. E Jiao supplements blood, arrests bleeding, nourishes yin, and moistens dryness, thereby augmenting the overall blood-nourishing efficacy. The classic formula Siwu Tang (Four-Substance Decoction), comprising Shu Di Huang, Bai Shao, Dang Gui, and Chuanxiong (Ligusticum Chuanxiong Rhizoma), harmonizes the principles of supplementation and activation—the “static” and “dynamic” aspects of blood regulation—to replenish and modulate blood, thereby continuously delivering nourishing qi and blood to the sinews and vessels of the lower limbs.

6.2 Regulating Liver Qi and Promoting Blood Circulation to Relieve Stagnation

Chaihu (Bupleuri Radix), Xiangfu (Cyperi Rhizoma), Qingpi (Citri Reticulatae Pericarpium Viride), and Yujin (Curcumae Radix) are principal medicinals for regulating and soothing Liver qi. Chaihu, light in nature and ascending and dispersing in action, relieves Liver depression, harmonizes the exterior and interior, and promotes the free flow of qi. Xiangfu regulates qi, resolves depression, relieves pain, and regulates menstruation, earning the designation of the “principal agent for qi disorders.” Qingpi breaks stagnant qi, soothes the Liver, resolves food stagnation, and transforms accumulations; it is particularly indicated for severe cases of Liver qi constraint. Yujin invigorates blood to alleviate pain, moves qi to disperse stagnation, clears the heart, and cools the blood, working in concert with the other herbs to potentiate the therapeutic effect. Using Chaihu Shugan San (Bupleurum Liver-Soothing Powder) as the base formula, with modifications according to individual patient presentations, one may regulate qi, activate blood circulation, break stasis, and unblock the meridians — thereby dispelling the accumulation of qi and blood stasis in the lower limbs.

6.3 Calming Liver Yang and Stabilizing the Spirit to Quell Disturbances

Tianma (Gastrodiae Rhizoma), Gou Teng (Uncariae Ramulus cum Uncis), Shijue Ming (Haliotidis Concha), and Zhenzhu Mu (Margaritifera Concha) are employed to pacify the Liver, subdue Yang, extinguish wind, and relieve spasm. Tianma pacifies the Liver and subdues wind, with particular efficacy in treating vertigo, numbness of the extremities, and hemiplegia. Gou Teng clears heat, pacifies the Liver, extinguishes wind, and arrests convulsions, and has been shown to exert antihypertensive and anticonvulsant effects. Shijue Ming suppresses hyperactive Liver yang, clears Liver heat, and improves visual function. Zhenzhu Mu subdues ascending Liver yang, calms the spirit, alleviates fright, and ameliorates insomnia and restlessness. The modified formulation of Tianma Gouteng Yin (Gastrodia and Uncaria Decoction), which pacifies the Liver, extinguishes wind, clears heat, and activates blood circulation, is effective in controlling the refractory lower limb twitching and spasm associated with hyperactive Liver yang.

6.4 Nourish Liver Yin, Clear Deficient Heat, and Subdue Deficient Wind to Strengthen the Root

Gou Qi Zi (Lycii Fructus), Shan Zhu Yu (Corni Fructus), Ju Hua (Chrysanthemi Flos), Nü Zhen Zi (Ligustri Lucidi Fructus), and Han Lian Cao (Ecliptae Herba) are employed to nourish Liver yin and clear deficiency fire. Gou Qi Zi tonifies the Liver and Kidneys, enriches essence, and improves visual acuity. Shan Zhu Yu supplements the Liver and Kidneys and possesses astringent properties. Ju Hua clears the Liver, sharpens vision, and subdues hyperactive Liver yang. Nü Zhen Zi nourishes the Liver and Kidneys, promotes hair growth, and improves eyesight. Han Lian Cao enriches yin, benefits the Kidneys, cools blood, and arrests bleeding. The modified formulation of Qi Ju Di Huang Wan (Lycium, Chrysanthemum, and Rehmannia Pill) nourishes the yin of the Liver and Kidneys, clears deficiency heat, subdues internal wind, and addresses the fundamental root of lower limb discomfort arising from yin deficiency with wind agitation.

7. Clinical Case Examples

Case 1: A 60-year-old female patient, Mrs. Li, had suffered from restless legs syndrome for three years. She presented with nightly intolerable soreness, distension, and stabbing pain in the calves, which severely interfered with sleep onset. These manifestations were accompanied by hypochondriac distension, low mood, dry mouth and throat, a red tongue with scanty coating, and a wiry, thready, rapid pulse. The pattern was identified as Liver yin deficiency with internal wind generation due to deficiency. The therapeutic principle was to

nourish yin and the Liver, extinguish wind, and unblock the meridians. The prescribed formula was Yiguan Jian (One-Pot Decoction) combined with Shaoyao Gancao Tang (Peony and Licorice Decoction), modified as follows: Beishashen (Glehniae Radix) 15 g, Maidong (Ophiopogonis Radix) 12 g, Danggui (Angelicae Sinensis Radix) 10 g, Shengdihuang (Rehmanniae Radix) 15 g, Gouqizi (Lycii Fructus) 12 g, Chuanlianzi (Toosendan Fructus) 6 g, Baishao (Paeoniae Radix Alba) 30 g, and Gancao (Glycyrrhizae Radix et Rhizoma) 10 g. After one week of treatment, the leg symptoms subsided and sleep quality improved; after two months of continued administration, all symptoms resolved, and no recurrence was observed during a six-month follow-up period.

Case 2: A 45-year-old male patient, Mr. Wang, had been diagnosed with RLS for six months. He complained of a sensation of oppression and numbness in both lower limbs, which was milder during the day and aggravated at night, with exacerbations under high occupational stress. He also reported restlessness, anxiety, and occasional sighing. His tongue was pale red with a thin white coating, and his pulse was wiry. The pattern was diagnosed as Liver qi stagnation with impeded circulation of qi and blood. He was prescribed a modified formulation of Chaihu Shugan San (Bupleurum Liver-Soothing Powder): Chaihu (Bupleuri Radix) 12 g, Xiangfu (Cyperi Rhizoma) 10 g, Zhike (Aurantii Fructus) 10 g, Baishao (Paeoniae Radix Alba) 15 g, Chuanxiong (Chuanxiong Rhizoma) 8 g, Zhigancao (Glycyrrhizae Radix et Rhizoma Praeparata) 6 g, Mugua (Chaenomelis Fructus) 15 g, and Jixueteng (Spatholobi Caulis) 20 g. At the follow-up visit two weeks later, the leg discomfort had subsided and the patient's mood had improved; after one month of consolidation therapy, his condition remained stable.

Case 3: A 55-year-old female patient, Mrs. Zhang, had suffered from RLS for more than two years. She experienced nightly soreness, distension, and a pronounced crawling sensation in both lower limbs prior to sleep, which could only be relieved by repeated patting or ambulation. These symptoms were accompanied by restlessness, insomnia, hypochondriac distending pain, dry eyes, and tinnitus. Her tongue was red with a thin yellow coating, and her pulse was wiry and thready. The pattern was diagnosed as RLS of the "Liver yang hyperactivity with Liver blood deficiency" type. The prescribed formula was: Tianma (Gastrodiae Rhizoma) 10 g, Gouteng (Uncariae Ramulus cum Uncis) 15 g (decocted later), Shijueming (Haliotidis Concha) 30 g (decocted first), Shudihuang (Rehmanniae Radix Praeparata) 20 g, Baishao (Paeoniae Radix Alba) 15 g, Danggui (Angelicae Sinensis Radix) 10 g, Chaihu (Bupleuri Radix) 6 g, Xiangfu (Cyperi Rhizoma) 10 g, Yejiaoteng (Polygoni Multiflori Caulis) 30 g, and Hehuanpi (Albiziae Cortex) 15 g. Seven doses were prescribed, to be decocted in water and taken orally, one dose daily. At the second consultation, the leg discomfort had subsided and sleep had improved. Chaihu and Xiangfu were subsequently omitted from the formula, and the patient continued with 14 additional doses for consolidation, after which all symptoms gradually resolved. This case exemplifies a comprehensive therapeutic strategy addressing the Liver from multiple dimensions—simultaneously nourishing and regulating Liver blood, pacifying Liver yang, and soothing Liver qi—with favorable clinical outcomes.

8. Conclusion

The therapeutic approach to Restless Legs Syndrome (RLS) based on the theory that "the liver stores blood and houses the soul" constitutes a profound exploration of the essence of TCM zang-fu pattern differentiation and is closely aligned with the multifaceted pathophysiology of this disorder. Ranging from tonifying Liver blood and regulating Liver qi to pacifying Liver yang and clearing Liver heat, the precise deployment of herbal agents according to distinct pattern types demonstrates the strengths of individualized treatment in TCM. The clinical cases presented herein further substantiate the feasibility and therapeutic efficacy of this approach.

In future research, efforts should be directed toward further integrating theoretical constructs with clinical practice, expanding large-scale clinical trials, and exploring integrative protocols combining TCM and Western medicine. By employing modern biomedical technologies to elucidate the mechanisms of action and pharmacologically active constituents of the herbal formulae employed, it will be possible to promote the standardization and scientific advancement of TCM-based RLS management. Such endeavors will not only alleviate the suffering of numerous patients but also underscore the unique and enduring value of TCM's zang-fu theory in addressing contemporary intractable diseases.

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