

The Treatment of Vitiligo with Liver and Kidney Deficiencies

Zeji Zhang¹, Liwen Wang^{2,*}

¹Shaanxi University of Chinese Medicine, Xianyang 712046, Shaanxi, China

²Affiliated Hospital of Shaanxi University of Chinese Medicine, Xianyang 712000, Shaanxi, China

*Correspondence Author

Abstract: *Vitiligo is a common depigmentation disease, which is mainly characterized by the skin color fading or whitening at the lesion, which seriously affects the appearance of patient and brings a greater psychological burden to the patient. Vitiligo is easy to diagnose but difficult to treat, the etiology of the disease is complicated and the pathogenesis is unknown. Traditional Chinese medicine believes that the onset of vitiligo is caused by a variety of internal and external pathological factors, and is closely related to the liver, spleen, and kidney. In recent years, traditional Chinese medicine has triggered extensive research on the prevention and treatment of vitiligo, and has made certain research progress. This article is based on the basic theory of Chinese medicine and the pathogenesis of vitiligo, summarizing the etiology and pathogenesis of vitiligo and using the basic principles and ideas of vitiligo treatment from the perspective of liver and kidney deficiency, which means nourishing the kidney and liver in order to achieve a balance of yin and yang and the mutual production of essence and blood.*

Keywords: Vitiligo, Nourishing the liver and kidney, Chinese Medicine.

1. Introduction

Vitiligo, a common dermatological disorder, manifests as sudden depigmented patches or spots on the skin or mucous membranes. The etiology of this condition lies in the dysfunction or reduction of melanocytes within the skin [1]. Vitiligo poses diagnostic challenges and exhibits a high recurrence rate, thereby warranting focused attention and research in the medical field. Recent epidemiological studies indicate a global prevalence of vitiligo ranging from 0.5% to 2.0% of the population [2]. In mainland China, the prevalence is relatively lower, fluctuating within the range of 0.1% to 0.27%. Notably, 25% of affected individuals develop vitiligo before the age of 10, underscoring its impact on childhood health and emphasizing the importance of early diagnosis and treatment. Over the years, the incidence of vitiligo has been steadily increasing, possibly attributed to lifestyle changes, heightened stress levels, and altered daily habits. Currently, the pathogenesis of vitiligo remains unclear, and available treatments often entail lengthy courses with suboptimal efficacy. Western medicine primarily employs pharmacotherapy, physical interventions, and surgical procedures, including corticosteroids, calcineurin inhibitors, and vitamin D3 derivatives [3]. Traditional Chinese medicine attributes vitiligo to disharmony of the liver, spleen, and kidney, leading to Qi and blood imbalance, compounded by external pathogenic factors affecting the skin [4]. Through a comprehensive review of literature and integration of clinical insights from ancient and contemporary medical practitioners, this paper focuses on the fundamental principles and approaches to diagnosing and treating vitiligo from the perspective of liver and kidney imbalances, aiming to provide valuable guidance for clinical practice.

2. Etiology and Pathogenesis

Vitiligo is a depigmenting skin disorder with a currently unclear pathogenesis. The majority of scholars and clinicians believe it is associated with the autoimmune destruction of melanocytes. TCM has a long history of understanding

vitiligo, with extensive content on the subject. "Prescriptions for Fifty-two Diseases," a text from the Spring and Autumn and Warring States periods, is one of the earliest medical works in Chinese history, detailing many skin diseases. Specific terms used in this text, such as "Bai Chu" and "Bai Wu Zou," refer to skin diseases characterized by pigment loss, including what is today known as vitiligo. During the Northern and Southern Dynasties, the significant dermatological text "Liu Juanzi's Remedies Bequeathed by Ghosts" emphasized external treatments in medical practice, recording 83 external treatment formulas for dermatological and surgical conditions, including three specific treatment schemes for vitiligo, referred to as "Bai Ding" or "Bai Bo." These terms demonstrate the medical community's in-depth understanding and unique insights into vitiligo at the time.

In the Sui Dynasty, Chao Yuanfang's "Treatise on the Causes and Symptoms of Diseases" described vitiligo as "skin, neck, and body flesh turning white, differing from normal flesh color, also without itching or pain." This text further explored the etiology of vitiligo, attributing it to stagnation of liver qi, deficiency of the liver and kidney, invasion of pathogenic wind into the skin, disharmony of qi and blood, chronic qi stagnation and blood stasis, and obstruction of meridians leading to inadequate nourishment of the skin. Although the manifestation of the disease is primarily on the skin, a deeper exploration reveals it is closely related to the functional state of the spleen, stomach, liver, and kidney. Recurrent attacks can be triggered by external pathogens or emotional distress, with a slow, protracted disease course that is difficult to cure. The earliest record of the term "vitiligo" appears in the Tang Dynasty in "Wai Tai Mi Yao, Volume 15," and during the Song Dynasty, the "Tai Ping Sheng Hui Fang" referred to vitiligo as "Bai Bo Feng," noting, "It often occurs on the neck and face, with speckled white spots, without ulcers or itching, and if not treated early, it may spread." Modern scholars have identified internal causes of vitiligo, primarily stagnation of liver qi, chronic illness leading to qi and blood deficiency, and deficiencies of the liver and kidney. Contemporary understanding of the etiology and pathogenesis of vitiligo has

gradually improved, with experts like Professor Xuan Guowei suggesting that the disease is primarily due to the evil of rheumatism attacking the skin or emotional distress leading to disruption of qi and blood flow, which in turn fails to nourish the skin, typically resulting in a chronic, difficult-to-cure condition [5]. Zhang Zuozhou categorized the etiology and pathogenesis of vitiligo into "three points and one key": liver and kidney yin deficiency as the root, rheumatic invasion as the branch, qi stagnation and blood stasis as the main, and spleen-stomach weakness as the key [6]. Deficiencies in liver, kidney, and spleen-stomach can lead to insufficient generation and transformation of qi and blood, weakening the nourishment of the skin and potentially triggering white patches. Vitiligo's pathology is primarily based on liver and kidney yin deficiency, with qi stagnation and blood stasis. As such, the main organs involved are the liver and kidney, with the disease primarily presenting in the skin and muscles. Therefore, treatment strategies should focus on nourishing the liver and kidney, regulating liver qi, along with activating blood circulation, removing blood stasis, strengthening the spleen, and dispelling wind, aiming for a therapeutic approach that addresses both the root and the symptoms. This treatment aligns with the disease's pathogenesis and reflects the holistic perspective and principle of syndrome differentiation and treatment in TCM.

3. Tonifying the Liver and Kidney to Treat the Root Cause

In the medical text "Suwen · Six Sections of the Theory of Corresponding Phenomena," it is recorded: "The liver is the root of exhaustion and the residence of the soul; its essence lies in the nails, its abundance in the sinews, in order to engender qi and blood." This sentence summarizes the physiological functions and characteristics of the liver, while also proposing the viewpoint of "the liver engenders qi and blood." The "Valuable Prescriptions for Emergency" states: "The essence is the storehouse of the kidney." Recorded by Wang Bing of the Tang Dynasty: "When the essence and qi of the five viscera and six bowels overflow, they seep into the kidney, which then receive and store them." These all indicate the function of the kidney to receive and store the essence of the human body. The liver stores blood, the kidney store essence; essence and blood mutually nourish each other. The two complement each other, ensuring the normal circulation of qi, blood, and body fluids in the human body, known as the "Hepatorenal homology medicine" and "Yi (the live) and Gui (the Kidney) bejng the same source." The liver and kidney are in a mother-son relationship in the generation cycle of the Five Elements, i.e., "water generates wood." The liver and kidney communicate with each other, with essence and blood originating from the same source, storage and excretion mutually utilized, and yin and yang mutually nourished.

In the onset and development of vitiligo, patients often exhibit significant symptoms of mental tension, emotional suppression, and excessive worrying, especially notable in female patients. This is because the liver is the general of the body, and its main physiological function is to store blood for nourishing the body's organs and apertures, as well as to regulate the smooth flow of liver qi, ensuring unobstructed circulation throughout the body, thus ensuring the orderly functioning of the body's organs, meridians, form and

structure, and apertures. The kidney are the foundation of congenital essence and the root of yin and yang. When kidney qi is abundant, the skin is bright, moist, and radiant; when kidney qi is deficient, the skin becomes dull, lacking luster, and prone to dryness, atrophy, and even pigment abnormalities. The skin relies on the nourishment of nutrients and blood. The liver stores blood, the kidney store essence; essence and blood share the same origin and can transform mutually. Liver blood relies on the nourishment of kidney essence, and kidney essence relies on the continuous replenishment of liver blood. Liver blood and kidney essence mutually nourish and transform each other. Liver and kidney deficiency is the main internal cause of vitiligo. Liver and kidney deficiency caused by various reasons can lead to insufficient essence and blood, insufficient nourishment of meridians and collaterals, and thus loss of radiance in the skin, with meridians and pores lacking nourishment, resulting in the formation of white patches. Modern medicine has found that there is a close intrinsic relationship between the kidney and the body's immune system. In particular, when the yang qi of the kidney weakens, it will adversely affect the body's immune function to some extent. Zhao Jingxia et al. believe that the method of tonifying the liver and kidney can effectively inhibit the activity of tyrosinase in melanocytes. Professor Wang Jusheng's research has found that nourishing the liver and kidney can up-regulate the mRNA expression of tyrosinase in melanocytes, promote the biosynthesis of enzyme proteins, possibly promote the synthesis of melanin by raising the cAMP level in melanocytes, and the medicated serum containing liver and kidney tonifying herbs can inhibit apoptosis and lipid peroxidation status of B16 melanocytes, demonstrating an anti-oxidative stress damage effect [7]. The above studies provide experimental and theoretical support for the treatment of vitiligo with traditional Chinese medicine focusing on tonifying the liver and kidney, thus it can be considered that traditional Chinese medicine treats vitiligo mainly by tonifying the liver and kidney, improving the body's immune function through tonifying the liver and kidney.

In the vitiligo patient population, those with liver and kidney deficiency often exhibit signs of frailty or prominent familial medical history characteristics, with a relatively longer course of illness, and localized or widespread depigmented patches. Such patients commonly present symptoms such as dizziness, tinnitus, insomnia, forgetfulness, and lumbago-knee weakness. Tongue examination reveals a red tongue with scanty coating, and the pulse is thin and weak. In the treatment strategy, we generally adhere to the overall principle of tonifying the kidney yang and nourishing the essence and blood to harmonize the imbalance caused by liver and kidney deficiency. In specific treatment, individualized adjustments are made based on the patient's differences and the severity of the condition to achieve optimal therapeutic effects. Classic formulas commonly used in clinical practice for vitiligo treatment include Si Wu Tang, Tong Qiao Huo Xue Tang, and Liu Wei Di Huang Tang, which show significant efficacy with minimal side effects. In addition to classic formulas, many physicians formulate treatments based on their understanding of the etiology and pathogenesis of vitiligo, achieving good therapeutic effects. Among them, Professor Guo Nianyun formulated a liver and kidney nourishing recipe consisting of *Angelica sinensis*, prepared *Rehmannia* root, white peony root,

polygonum multiflorum, ligustrum lucidum, Tribulus terrestris, black sesame, and cuscuta seed, with the efficacy of tonifying the liver and kidney, nourishing the blood, and dispelling wind [8]. In clinical practice, this formula has demonstrated significant efficacy, and its mechanism of action may be related to the enhancement of melanocyte tyrosinase activity, the enhancement of melanocyte antioxidant capacity, thereby positively regulating or promoting the proliferation and synthesis of melanocytes. Professor Ai Rudui, based on a deep understanding of the special physiological characteristics of children, proposed a unique diagnosis and treatment strategy, advocating focusing on the spleen and stomach during the treatment process, emphasizing the root cause, simultaneously treating the spleen and kidney, and adhering to the strategy of tonifying the kidney throughout the disease treatment process. In specific treatments, Professor Ai flexibly uses Si Jun Zi Tang and adjusts medications based on the condition, while also combining herbs that tonify the kidney essence to achieve optimal therapeutic effects [9]. Professor Bo Hong believes that the elderly population generally faces the problem of insufficient essence and qi, leading to stagnation of blood circulation, which may ultimately trigger vitiligo. In treatment, Professor Bo adopts a comprehensive regulation strategy. He uses herbs such as Angelica sinensis, white peony, and prepared Rehmannia root to nourish and supplement blood; at the same time, Eucommia ulmoides, Morinda officinalis, dodder seed, and polygonum multiflorum are used to tonify the liver and kidney and supplement essence and blood. In addition, he adds herbs such as Rhizoma Ligustici Chuanxiong, Arnebiae Radix, peach kernel, and safflower to promote qi circulation and blood circulation. Finally, licorice, as an auxiliary herb to harmonize various medicines, makes the entire treatment plan more coordinated, collectively exerting the effects of nourishing blood, supplementing liver and kidney, promoting blood circulation, and eliminating blood stasis. This treatment plan has achieved good results through clinical practice. Professor Xuan Guowei, in his treatment practice, upholds the principle of using black and white medicines in pairs and balancing and regulating yin and yang. His commonly used combinations include Eclipta alba with oyster shell, Scrophularia ningpoensis with Angelica dahurica, Phaseolus radiatus husk with white peony, Paeonia suffruticosa bark with Paeonia lactiflora bark, Psoralea corylifolia with Atractylodes macrocephala, and dodder seed with Tribulus terrestris. In these pairings, white medicines mainly exert the effects of dispelling wind, eliminating dampness, and soothing the liver, while black medicines focus on nourishing the liver and kidney and regulating qi and blood. Modern medical research further confirms that herbs such as Eucommia ulmoides, Cuscuta chinensis, and Angelica dahurica have the function of enhancing tyrosinase activity, thereby promoting melanin synthesis, which is consistent with Professor Xuan Guowei's treatment philosophy.

4. Conclusion

Vitiligo, as a chronic dermatological condition, exhibits a progressive course with a prolonged duration, presenting significant therapeutic challenges. In the practice of TCM for vitiligo treatment, we delve into exploring and adhering to the natural laws of disease occurrence and progression, emphasizing the integration of holistic and localized

treatments, macroscopic observation, and microscopic analysis. We employ a method of treatment based on syndrome differentiation with the aim of achieving individualized and precise therapy. Through this approach, clinically significant results have been achieved, bringing hope to patients with vitiligo. In the clinical treatment of vitiligo, following comprehensive analysis and summary, we utilize the core strategy of TCM theory "liver and kidney share the same origin, essence and blood share the same source." Therapeutically, our focus lies primarily on regulating and nourishing the liver and kidney, aiming to tonify these organs, soothe liver qi, while complementing with methods such as promoting blood circulation, resolving stasis, invigorating the spleen, and dispelling wind, in order to achieve the goal of comprehensive treatment. Such therapeutic methods not only conform to the holistic concept of TCM but also possess specificity and scientific basis. In the foundation of treating vitiligo, besides relying on tonifying liver and kidney herbs, we can also apply the theory of color correspondence in Chinese medicine, wherein the treatment of pigment loss skin diseases can involve the selection of dark-colored herbs such as Polygonum multiflorum, Radix Rehmanniae Praeparata, smoked plums, Fructus Ligustri Lucidi, black sesame, salvia miltiorrhiza, and Suberect Spatholobus Stem [10]. Modern pharmRehmannia glutinosaacological research has confirmed that herbs like psoralea, dodder seed, Chinese angelica, Tribulus terrestris, and ligustrum can activate tyrosinase, thereby promoting the proliferation and synthesis of melanocytes. Additionally, it is necessary to differentiate treatment based on factors such as the patient's affected areas, size of lesions, age, constitution, and gender, integrating the differentiation of diseases and syndromes in a flexible manner, while employing modern medical treatment methods, combining Chinese and Western medicine, internal and external treatments for vitiligo. In addition to conventional treatment methods, clinicians should also emphasize the importance of psychological and neurological factors in treatment, providing patients with emotional support, encouraging them to build confidence, in order to achieve better therapeutic outcomes.

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