

Advances in Research of Mongolian Medical Acupuncture for Cervical Spondylotic Radiculopathy (CSR) Based on the "Wind-blood" Theory

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Abstract [Objectives] To systematically review the advances in the research of the theoretical basis, clinical efficacy, and mechanisms of Mongolian medical acupuncture for Cervical Spondylotic Radiculopathy (CSR), and to explore its relationship with the "Khii – Khisu (Wind-blood)" theory. [Methods] Relevant literature from both domestic and international sources was searched. Besides, it summarized the etiology, pathogenesis, clinical manifestations, and treatment principles of CSR in Mongolian medicine, also summarized the commonly used acupoints and combination protocols in Mongolian medical acupuncture, compared the similarities and differences between various acupuncture regimens, and explained the underlying mechanisms in light of the "Wind-blood" theory. [Results] In Mongolian medicine, Cervical Spondylotic Radiculopathy (CSR) is classified as a "Disorder of the White Meridian". Its pathogenesis is considered to be closely associated with the disorder of the Three Life-sustaining Energies (Khii, Shar, Badgan). Clinical studies have demonstrated that Mongolian medical acupuncture can significantly alleviate pain and numbness, and improve cervical spine function in CSR patients. Although there are variations in acupoint selection, the approach consistently emphasizes the combination of local and distal points, highlighting the therapeutic goals of dredging the White Meridian and regulating qi and blood. The "Wind-blood" theory provides a scientific framework for explaining the neurological and inflammatory symptoms of CSR, thereby offering a basis for pattern differentiation and treatment. [Conclusions] Mongolian medical acupuncture for CSR offers the advantages of a solid theoretical basis and established clinical efficacy. However, its advancement in the modern context requires a deeper investigation into its mechanisms, the standardization of operational protocols, and further validation of its efficacy and safety through large-sample, evidence-based studies.

Key words Mongolian medical acupuncture, Khii – Khisu (Wind-blood), Cervical Spondylotic Radiculopathy (CSR)

1 Introduction

As one of the most common musculoskeletal disorders, cervical spondylosis can be clinically classified into several types: nerve root, spinal cord, sympathetic, vertebral artery, and mixed type. Among these, Cervical Spondylotic Radiculopathy (CSR) is the most prevalent, accounting for 60%–70% of all cervical spondylosis cases^[1]. At present, the main treatment approaches for CSR include surgical and conservative methods. Compared to conventional Western medical treatments, acupuncture and moxibustion therapy for CSR is increasingly favored by patients^[2]. In Mongolian Medicine, Cervical spondylosis is referred to as "Hezeen Hoyan" (related Yellow Water Disease), and is categorized under "Limb White Meridian Disease". It is primarily caused by prolonged residence in damp environments, exposure to wind and rain, environmental toxins, the infusion of influenza and pathogenic heat into the meridians, physical trauma, and similar factors. These lead to the disorder of the "Three Life – Sustaining Energies" (the fundamental physiological principles of the body) and the obstruction of the pathways of the white meridians in the limbs, resulting in qi stagnation and blood stasis^[3]. Current com-

mon Mongolian Medicine treatments for this condition include acupuncture, blood-letting, cupping, oral administration of Mongolian herbal medicine, medicinal baths, and topical application of Mongolian herbal preparations^[4–6]. Numerous studies have demonstrated the significant efficacy of Mongolian medical acupuncture in treating CSR, making it a common clinical intervention. Mongolian medicine emphasizes a holistic approach and treatment based on syndrome differentiation. Practitioners diagnose the specific pattern, whether it is primarily an excess of "Khii" (wind), a disorder of "Khisu" (blood) or another syndrome, to select the most appropriate therapeutic method or combination of therapies. As a core external therapy for regulating the balance between "Khii" and "Khisu" Mongolian acupuncture has shown advantages in CSR treatment. However, elucidating its mechanisms through modern scientific frameworks and optimizing clinical protocols remain current research challenges. This article aims to review the current state of therapy and its theoretical foundations, thereby laying the groundwork for future research.

2 Pathogenesis and the association with the "Khii – Khisu" (wind-blood) theory

The pathogenesis of CSR has not been uniformly elucidated. Main theories include mechanical compression, inflammatory response, and autoimmunity, which are interconnected and interact with each other. The symptoms caused by CSR result from the combined effects of these three pathogenic mechanisms^[7]. Traditional Mongolian medicine believes that cervical spondylosis falls under

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the category of "white meridian disease". It is caused by factors such as overexertion, traumatic injuries, or long-term exposure to cold and dampness, as well as sudden changes to cold and humid climates. These factors disrupt the "refining and waste separation process", leading to an accumulation of Khii, Khisu, and Shar Khisu in the tendons and meridians of the neck and upper limbs. This accumulation obstructs the flow of qi and blood, resulting in localized muscle spasms and impaired blood circulation. Consequently, symptoms such as pain and restricted movement manifest^[8]. The study by Sun Weiwei *et al.*^[9] also suggests that this disease is a white meridian disease. Due to the disruption of the relative balance of the Three Life-sustaining Energies (Khii, Shar, Badgan) and Seven Life – Sustaining Elements, the conflict between Badgan and Khii affects the circulation of Khii and Khisu, leading to clinical discomfort such as limb numbness, soreness, and dizziness. Some researchers have observed that white meridian disease, manifested by symptoms such as dizziness or vascular pulsating headaches, stiffness in the shoulders and neck, and cold sweats on the head, is also known as "head and neck white meridian disease". It occurs due to the disorder of the Three Life-sustaining Energies, damage to the head's white meridian, and the loss of physiological functions. Triggers for this disease include concussive injuries, physical trauma, epidemic toxins and heat invading the meridians, excessive exertion, exposure to cold and dampness, as well as wind-induced chills^[10].

Common clinical manifestations of CSR include neck and shoulder stiffness, limited mobility, shoulder pain, and numbness or soreness in the upper limbs. Typical symptoms consist of neck and shoulder pain, as well as radiating pain and numbness in the upper limbs corresponding to the dermatome distribution of the affected nerve roots^[11]. The main symptoms of the condition are stiffness and discomfort in the scapular and cervical regions. During acute exacerbations, patients may experience dull headaches or pulsatile headaches, dizziness, cold sweats or chilly pain in the head, blurred vision, yawning, belching, insomnia, stiffness and pain radiating from the neck upward, sensitivity to loud noises, loss of appetite, nausea and vomiting, and twitching or deviation of the eyelids and lips^[12].

In clinical practice of Mongolian medicine, the treatment of CSR primarily relies on external therapies. Cupping therapy creates a negative pressure on the local area, eliminating pathogenic factors, stagnant blood, and abnormal fluids, thereby reducing compression of the nerve roots, alleviating tension in the blood vessels around the neck, relieving local muscle spasms, promoting regional blood circulation, and improving the nutritional and metabolic state of the muscles, to ultimately achieving an analgesic effect^[11]. Acupuncture and moxibustion can stimulate nerves, dilate blood vessels, improve local blood circulation, relieve muscle spasms, and promote the resolution of inflammation and edema^[13]. Through warm needling therapy in Mongolian medicine, it maximizes the effects by activating the meridian qi in the body, dispelling wind and cold, unblocking collaterals, promoting qi

flow, and removing blood stasis to alleviate obstructions^[10]. Acupuncture can rapidly alleviate muscle spasms in the neck, promote blood circulation, and relieve symptoms such as pain and numbness. The Mongolian medicine Xinheisugawurile promotes the flow of qi and blood, unblocks the white meridians, separates essence from waste, and eliminates abnormal fluids (yellow water). It is primarily used to treat white meridian diseases, blood meridian disorders (black meridian diseases), and yellow water-related conditions^[14]. In summary, the interconnections between the pathogenesis, clinical manifestations, and treatment methods of CSR are not difficult to discern. Mongolian medical theory posits that the disordered nature of "Khii" (qi) is characterized by lightness, coarseness, mobility, and coolness. Its manifestations during imbalance include abnormal behaviors, motor dysfunction, restlessness, and insomnia, which closely align with the neuropathic pain symptoms of CSR. The disordered nature of "Khisu" (blood) is characterized by heat and sharpness. This disorder can be understood as localized blood circulation impairment, inflammatory responses, and edema, leading to the accumulation of "blood stasis" and "heat pathogens", which compress and irritate nerve roots, resulting in severe pain and swelling. This theory coincides with the pathogenesis attributed to imbalances in "Khii" and "Khisu"^[15] (Table 1).

3 Clinical effect and acupoint characteristics of acupuncture intervention on CSR

Current clinical studies have confirmed that Mongolian medical therapies such as acupuncture, cupping, and bloodletting are effective in alleviating the clinical symptoms of CSR. For example, after treatment, the overall efficacy of the cupping combined with acupuncture group was significantly higher than that of the acupuncture-alone group, showing a statistically significant difference^[16]. Similarly, the total effective rate in the acupuncture plus Mongolian medication group was higher than that in the conventional massage group. After treatment, scores for discomfort in the neck, shoulders, and upper back, pain and numbness in the upper limbs, and finger pain and numbness were significantly reduced in both groups compared to pre-treatment levels ($P < 0.05$)^[4]. However, a review of the acupoints selected reveals significant variations in the choice of acupuncture points across different treatments. For instance, Altanchimuge *et al.*^[17] included acupoints such as Jianqian (Shoulder Front), Jianhou (Shoulder Back, a Mongolian medical point), Jianyu, Jianmu, and Yanchi in their treatment. Chen Ying^[4] selected points including Xingzheng Dinghui, Fengchi, Tianzhu, and Khii point for acupuncture. Hai Qingchun^[16] performed acupuncture on bilateral Jiaji points at the cervical level (adjacent to the spinous processes of C5 and C6), Zhouwai (Quchi), Wanshang (Waiguan), and Mushi (Hegu). All three aforementioned studies selected local acupoints in the cervical and shoulder regions, directly targeting the areas affected by pain and stiffness in CSR. The use of Hegu and Waiguan belonging to the Large Intestine Meridian of Hand –

Table 1 Correlation between Mongolian medical "Wind-blood" theory and CSR symptoms and treatment

Theoretic elements	Characteristics	Corresponding CSR symptoms	Pathological mechanism	Treatment principle	Representative therapy
Khii disorder	lightness (implying instability), coarseness (denoting roughness), mobility (referring to erratic movement), and coolness (suggesting cold nature)	Radiating pain, numbness, muscle twitching, neck stiffness, dizziness, insomnia, and irritability.	White meridian (nervous system) and disorder of qi movement.	Regulating Khii, unblocking the white Meridian, and calming the spirit to stabilize the mind.	Warm needling therapy, Mongolian medicine (such as Xinheisugawurile)
Khisu disorder	heat (inflammatory nature) and sharpness (rapid onset or piercing quality)	Local burning pain, swelling, muscle spasms, and impaired blood circulation.	Accumulation of yellow water and stagnant blood, manifesting as inflammatory responses and blood stasis.	Clearing Khisu, removing blood stasis, promoting blood circulation, and relieving swelling and pain	Mongolian medicines for cupping, bloodletting and heat-clearing
Wind-blood balance	Complex pattern of simultaneous cold and heat symptoms	Alternating cold and heat pain, intractable pain, and a complex of neurovascular symptoms.	Imbalance of qi and blood	Harmonizing Khii, removing Khisu, removing blood stasis and activating blood circulation	Mongolian medicine for warm needling and regulating Khii

Yangming and the Triple Energizer Meridian of Hand – Shaoyang, respectively, helps to unblock meridian qi and blood, thereby alleviating numbness in the upper limbs. These approaches consistently integrated characteristic Mongolian medical points (such as

Khii point and Jianmu point) with classical acupuncture points from Traditional Chinese Medicine (*e. g.*, Fengchi, Tianzhu, Quchi), reflecting a combination of ethnic medical traditions and modern acupuncture practice (Table 2).

Table 2 Characteristics of selected acupoints

Researcher	Characteristics of selected acupoints	Theory
Alatengqimuge	Focusing on traditional Mongolian medical acupoints: Jianqian (anterior shoulder), Jianhou (posterior shoulder), Jianyu, Jianmu, and Yanchi (primarily characteristic acupoints in Mongolian medicine) [17]	Guided purely by Mongolian medical theory.
Chen Ying	Integration of Mongolian and Traditional Chinese Medicine: Dinghui point (Mongolian), Fengchi/Tianzhu (TCM), Khii point (Mongolian), shoulder series points + distal points (Waiguan, Hegu) [4]	Integration of Mongolian and Traditional Chinese Medicine.
Hai Qingchun	Primarily based on standardized TCM acupoint selection: Jiaji points (C5-C6), Quchi, Waiguan, Hegu (all are classic TCM acupoints) [16]	Primarily rooted in TCM meridian theory.

4 Discussion

Mongolian medical acupuncture for CSR has a solid theoretical foundation and extensive clinical practice support. By reviewing the literature, this study found that the Mongolian medical "Wind-blood" theory effectively explains the complex clinical manifestations of CSR. Khii disorder corresponds to neurological dysfunction, while Khisu disorder corresponds to inflammatory responses and local blood stasis. This syndrome differentiation system provides the basis for individualized treatment in Mongolian medicine. In terms of therapeutic approaches, Mongolian medicine emphasizes comprehensive intervention, often combining acupuncture with cupping, bloodletting, and Mongolian herbal medicine to form a multi-target treatment strategy. Although there are variations in acupoint selection, they all reflect the principle of "local + distal points" and share a common focus on dredging the white meridians and regulating qi and blood.

Although clinical reports indicate significant therapeutic effects of Mongolian medical acupuncture for CSR, current research still faces the following limitations. Most studies remain at the level of clinical efficacy observation, with a lack of standardization in acupoint selection and stimulation parameters, resulting in low reproducibility. Existing clinical trials are predominantly small-scale studies, lacking blinding design and long-term follow-

up data. Future research should utilize metabolomics^[18] and proteomics^[19] to elucidate the mechanism of action of Mongolian medical acupuncture, establish standardized treatment protocols based on the "Wind-blood" syndrome differentiation system, and design multi-center, large-sample randomized controlled trials for comparative studies with other conventional treatments.

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