

A Review of Compound Sihuang External Lotion

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Abstract: As a traditional Chinese medicine preparation, Compound Sihuang External Lotion shows unique advantages in the treatment of various clinical diseases, especially in infectious wounds, gouty ulcers, acute gouty arthritis, postoperative care of finger replantation, and contact dermatitis caused by PICC catheterization, which has attracted extensive attention. Since 2011, a lot of studies show that Compound Sihuang External Lotion can improve wound conditions, promote tissue growth, reduce pain and swelling, and significantly lower inflammatory markers like CRP, IL-6, and TNF- α , which improves therapeutic efficacy. Moreover, combing with other therapies like bloodletting puncture, auricular point pressing with beans, and vacuum sealing drainage (VSD), the Compound Sihuang External Lotion further improves its efficacy in wound repair and inflammation control. But even though there was a lot of progress in clinical application, we still need to do more research on its specific mechanism of action, optimal concentration, and dosage form modification to give a better scientific and rational basis for clinical use. This review seeks to cover all the application effects and possible mechanisms of Compound Sihuang External Lotion in treating different diseases, giving references for future research and clinical practice.

Keywords: Compound Sihuang External Lotion; Clinical application; Wound repair

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1. Introduction

Compound Sihuang External Lotion, this a traditional Chinese medicine preparation, it shows a lot of therapeutic potential in treating various clinical conditions, especially those with inflammation, infection, and tissue repair. Its applications encompass the management of gouty ulcers, acute gouty arthritis, orthopedic infections, diabetic foot ulcers, and PICC-related contact dermatitis. Although it has been widely used clinically, the mechanisms behind its efficacy are not fully understood. This review seeks to comprehensively summarize the clinical evidence, including the antibacterial effects, wound healing properties, and advancements in quality control for Compound Sihuang External Lotion.

2. Application of Compound Sihuang External Lotion in the treatment of gouty ulcers

Compound Sihuang External Lotion is a traditional Chinese medicine preparation, it has a good efficacy in treating gouty ulcers. Gouty ulcers are due to the destruction of soft tissues and bones near joints, which is caused by long-term hyperuricemia, and often have severe inflammatory reactions. Compound Sihuang External Lotion has effects of clearing heat and detoxifying, reducing swelling, and relieving pain. It is widely used in the management of gouty ulcers.

Cai Xiaomin et al. (2024) conducted a clinical study on the efficacy of a wet compress formulation combined with Compound Sihuang External Lotion and bloodletting puncture for the treatment of gouty ulcers. A total of 100 patients with gouty ulcers were randomly divided into observation group and control group. The observation group received additional bloodletting puncture on the basis of wet compress with Compound Sihuang External Lotion. The results showed that the total effective rate of the observation group was significantly higher than that of the control group ($P=0.008$), and the levels of CRP and IL-6 in both groups decreased after treatment, with a more significant reduction in the observation group^[1]. In another study, Chen Haihong et al. (2018) evaluated the effect of external application of Compound Sihuang External Lotion on acute gouty arthritis. Seventy-two patients with acute gouty arthritis were assigned to study group and control group. The study group received Compound Sihuang External Lotion in addition to conventional treatment. The total effective rate of the study group was 83.3%, significantly higher than that of the control group. Both studies confirmed the effectiveness of Compound Sihuang External Lotion in the treatment of gouty ulcers^[2].

Compound Sihuang External Lotion achieves significant efficacy in treating gouty ulcers, effectively relieving inflammatory responses and improving therapeutic outcomes. Future research may further explore its specific mechanism of action to provide more scientific evidence for clinical application.

3. Compound Sihuang External Lotion has antibacterial effect, and the mechanism behind this effect is not explicitly stated

Compound Sihuang External Lotion isn't just doing well in gouty ulcers, it also has a remarkable antibacterial activity. Methicillin-resistant *Staphylococcus aureus* (MRSA) is a common bacterium that is resistant to multiple antibiotics. This bacterium is particularly difficult to treat in clinical settings. Compound Sihuang External Lotion has multiple Chinese herbal components, so it can effectively inhibit MRSA growth. This a new approach for clinical therapy.

Chen Xiaojian (2017) determined the in vitro antibacterial effects of Compound Sihuang External Lotion and its single herbs against MRSA using the Kirby-Bauer (K-B) disk diffusion method. The results showed that Compound Sihuang External Lotion inhibited MRSA growth at a low concentration, with an inhibition zone diameter of up to 15 mm at a high concentration^[3]. Furthermore, Chen Xiaojian et al. (2017) explored the antibacterial mechanism of Compound Sihuang External Lotion against MRSA and found that it could reduce the activity of alkaline phosphatase (ALP) and cause the leakage of potassium and magnesium ions in MRSA suspension^[4].

These results show that Compound Sihuang External Lotion has a lot of antibacterial effects via few mechanisms.

Compound Sihuang External Lotion has a very good antibacterial activity, especially for MRSA. Its

multi-component synergistic mechanism offers a novel approach to the treatment of multidrug-resistant bacterial infections. Future studies might further investigate its antibacterial mechanism to enable it to be applied more widely.

4. Compound Sihuang External Lotion in wound repair

Compound Sihuang External Lotion has a good effect on wound repair. Orthopedically infected wounds are a clinical challenge, since conventional therapies usually don't work well and have high recurrence rates. Compound Sihuang External Lotion with vacuum sealing drainage (VSD) can effectively remove wound infection, promote granulation tissue growth, and accelerate wound healing.

Li Xusong et al. (2016) explored the effect of Compound Sihuang External Lotion combined with VSD on the repair of orthopedic infected and defective wounds.

Ninety patients with orthopedically infected wounds were randomly divided into three groups (Groups A, B, and C). Group A received continuous perfusion and irrigation with Compound Sihuang External Lotion combined with VSD; Group B received external application of Compound Sihuang External Lotion alone; Group C received continuous VSD alone. The results revealed that the growth of granulation tissue in Group A was significantly better than that in Groups B and C, and the levels of IL-6 and TNF- α in wound exudate were significantly reduced ^[5-7]. Similar results were reported by Liu Sijing et al. (2016), confirming the excellent performance of Compound Sihuang External Lotion combined with VSD in wound repair ^[8].

Compound Sihuang External Lotion combined with VSD has prominent advantages in the treatment of orthopedic infected wounds, effectively promoting wound healing and reducing infection. Future research may further optimize the administration method of Compound Sihuang External Lotion to enhance its clinical efficacy.

5. Application of Compound Sihuang External Lotion in the treatment of other diseases

Besides gouty ulcers, antibacterial effects, and wound repair, Compound Sihuang External Lotion also shows favorable efficacy in the treatment of other diseases, such as diabetic foot ulcers and contact dermatitis caused by PICC catheterization, further verifying its versatility and clinical value.

Liu Yingchun (2011) investigated the effect of Compound Sihuang External Lotion combined with moxibustion on diabetic foot ulcers. Fifty-two diabetic foot patients were randomly divided into an observation group and a control group. The observation group received Compound Sihuang External Lotion combined with moxibustion, while the control group received Compound Sihuang External Lotion alone. The efficacy of the observation group was significantly better than that of the control group, with a markedly shortened wound healing time ^[9]. In another study, Sun Tingting et al. (2019) evaluated the application effect of wet compress with Compound Sihuang External Lotion on PICC-related contact dermatitis. Forty-eight patients with chronic tumors were randomly divided into a control group and an observation group. The observation group received a wet compress with Compound Sihuang External Lotion on the basis of routine care ^[10]. The results showed that the therapeutic effect of the observation group was significantly better, with obviously reduced dressing changes, treatment duration, and hospitalization costs.

Compound Sihuang External Lotion achieves excellent efficacy in the treatment of various diseases,

relieving symptoms and improving therapeutic outcomes. Future research may expand its application scope to provide more scientific evidence for wider clinical use.

6. Quality control and dosage optimization is the process of improving the quality of a product

To ensure the clinical efficacy of Compound Sihuang External Lotion, research on its quality control and dosage form optimization is particularly important. As a Chinese medicine preparation with complex components, Compound Sihuang External Lotion is difficult to control in quality. The establishment of scientific quality standards and dosage form optimization can improve its stability and effectiveness, ensuring safety and reliability in clinical application.

Yuan Yiming (2017) optimized the extraction process of Compound Sihuang External Lotion by orthogonal design and established an HPLC fingerprint analysis method, providing a reliable basis for scientific evaluation and effective quality control ^[11,12]. The optimized extraction process significantly increased the contents of emodin and berberine hydrochloride in Compound Sihuang External Lotion. In another study, Yuan Yiming et al. (2024) explored the formulation optimization and antibacterial effect of Compound Sihuang Double Hydrogel. Using an orthogonal test, with an artificial skin membrane as the transdermal medium, the forming process of Compound Sihuang Double Hydrogel was optimized through an *in vitro* transdermal test and antibacterial experiment. The optimized Compound Sihuang Double Hydrogel showed better transdermal effect and stronger antibacterial activity ^[13].

Quality control and dosage form optimization of Compound Sihuang External Lotion can significantly improve its clinical efficacy. Future research may further improve its quality standards and develop more novel dosage forms to provide technical support for its wider application.

7. Conclusion

As a traditional Chinese medicine preparation, Compound Sihuang External Lotion presents significant efficacy in various clinical applications. Studies have shown that it can effectively treat gouty ulcers, acute gouty arthritis and other diseases, and significantly reduce inflammatory markers including CRP, IL-6 and TNF- α . Moreover, combined with other therapies such as bloodletting puncture, auricular point pressing with beans, and VSD, it can further enhance therapeutic effects, accelerate wound repair, and alleviate pain and swelling. These findings provide a solid theoretical basis for the clinical application of Compound Sihuang External Lotion.

Although existing studies have verified the favorable clinical efficacy of Compound Sihuang External Lotion, further research is required to explore its mechanism of action, especially the specific mechanism at the molecular level. In addition, issues such as the optimal concentration, long-term safety, and drug interactions of Compound Sihuang External Lotion deserve in-depth investigation ^[14]. Future studies should also focus on its application in more diseases, such as diabetic foot ulcers and skin reactions induced by radiotherapy for nasopharyngeal carcinoma, to expand its clinical scope and offer more treatment options for patients ^[15].

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Disclosure statement

The authors have no conflict of interest.

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