

# Yinqiao Sanhuang Paste Combined with Traditional Chinese Medicine Plaster for the Intervention of Drug Rash Induced by Targeted Therapy in Lung Cancer

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**Abstract:** *Objective:* To observe the efficacy and safety of Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster in treating drug rash caused by targeted therapy in lung cancer. *Methods:* A total of 100 lung cancer patients treated at our hospital from January 2021 to December 2023 were selected and randomly divided into an observation group and a control group, with 50 patients in each group. The control group received conventional medication, while the observation group was treated with Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster. The clinical symptom improvement and adverse reactions in both groups were observed. *Results:* The effective rate in the control group was 80.00%, while in the observation group, it was 96.00%, with a statistically significant difference between the two groups ( $P < 0.05$ ). The onset time, duration, and significant effect time in the control group were ( $2.41 \pm 0.29$ ) days, ( $4.42 \pm 1.21$ ) days, and ( $5.45 \pm 0.29$ ) days, respectively; in the observation group, they were ( $2.44 \pm 0.21$ ) days, ( $4.28 \pm 1.11$ ) days, and ( $5.57 \pm 1.01$ ) days, respectively. There was no statistically significant difference in the total onset time and total duration between the two groups ( $P > 0.05$ ). The incidence of adverse reactions in the control group was 28.00%, higher than the observation group's 10.00% ( $P < 0.05$ ). *Conclusion:* Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster can effectively reduce the symptoms of drug rash induced by targeted therapy in lung cancer and lower the incidence of adverse reactions, indicating good clinical application value.

**Keywords:** Yinqiao Sanhuang Paste; Traditional Chinese medicine plaster; Drug rash; Efficacy

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## 1. Introduction

As medical technology continues to advance, targeted therapies have become an important means of treating lung cancer. However, these therapies often come with a range of adverse reactions, the most common of which is drug-induced rash (drug rash). Drug rash not only significantly affects the patient's quality of life but may also interfere with the continuation of targeted therapy, potentially impacting the treatment outcome and

survival time. The pathogenesis of drug rash is complex, involving immune responses and cytotoxic reactions, among other factors. Traditional treatments include the use of corticosteroids and antihistamines, but these often have limited efficacy and significant side effects. Therefore, finding a safer and more effective intervention for drug rash is of great clinical significance. In recent years, the role of traditional Chinese medicine in cancer treatment has gained increasing attention. Yinqiao Sanhuang Paste is a traditional Chinese medicine preparation with the effects of clearing heat, detoxifying, cooling the blood, and reducing swelling, and it has been widely used in the treatment of skin diseases. Traditional Chinese medicine plaster is an external treatment method in Chinese medicine, where the medicine is applied to the affected area, allowing the active ingredients to penetrate directly to the site of the lesion to achieve a therapeutic effect. This study aims to explore the intervention effects of Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster on drug rash caused by targeted therapy in lung cancer, providing new ideas and methods for the treatment of drug rash. This research helps further elucidate the mechanisms and treatment methods for drug rash and enriches the theoretical application of traditional Chinese medicine in cancer treatment.

## 2. Materials and methods

### 2.1. General information

This study involved 100 cases, including 54 males and 46 females, aged between 38 and 78 years with an average age of  $63.21 \pm 12.42$  years. The duration of illness ranged from 1 to 9 years, with an average duration of  $3.09 \pm 0.58$  years. Among them, 30 cases had stage III lung cancer, and 70 cases had stage IV lung cancer. Using a random number table method, the patients were divided into two groups: the control group with 50 patients and the observation group with 50 patients. The control group primarily exhibited symptoms such as rash, fever, joint pain, and headache, while the observation group primarily exhibited symptoms such as rash, fever, joint pain, cough, and chest tightness. Both groups met the diagnostic criteria for drug rash in Traditional Chinese Internal Medicine <sup>[1]</sup>, and all patients received the same clinical medication regimen. All enrolled patients signed informed consent forms and fully understood the content of the study.

### 2.2. Methods

The control group received conventional medication, following standard treatment principles with anti-infection and sedative drugs to control infections, alleviate symptoms, and prevent disease progression. The observation group received the same treatment with the addition of Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster. The specific method was:

- (1) Composition of Yinqiao Sanhuang Paste: 10 g of *Lonicera japonica*, 10 g of *Forsythia suspensa*, 5 g of *Phellodendron chinense*, 6 g of dandelion, 10 g of *Rehmannia glutinosa*, 10 g of *Angelica dahurica*, 10 g of peony tree root bark, 10 g of *Artemisia annua*, 3 g of licorice, 1 slice of fresh ginger, and 3 g of mint.
- (2) Traditional Chinese medicine plaster procedure: Patients were positioned in a sitting or supine position. The above-mentioned herbs were mixed with water in a ratio of Rhubarb:*Scutellaria baicalensis*:*Coptis chinensis*:Chinese Peony:Licorice = 1:2:3:1:0.5, then heated until the herbs were completely dissolved and appeared semi-transparent. The mixture was applied to the affected area once daily for 1–2 hours each time. Patients were advised to rest, avoid fatigue, refrain from consuming spicy, greasy, or allergenic foods, maintain a clean living environment, and strengthen nutrition to promote recovery. Both groups received compound preparations containing corticosteroids for anti-inflammatory and anti-

allergic treatment, such as Methylprednisolone (Taiwan South Sun Chemical Pharmaceutical, National Medicine Standard HJ20170197) and Dexamethasone Sodium Phosphate Injection (Hainan Better Pharmaceutical Co., Ltd., National Medicine Standard H320215611).

### 2.3. Observation indicators

The study observed the clinical efficacy and adverse reactions in both groups.

- (1) Clinical efficacy was determined based on the “Guidelines for Clinical Research of New Chinese Medicines,” using a “three-step method”: (a) Significant effect: Complete resolution of rash and related symptoms; (b) Effective: Marked improvement in rash and related symptoms, but not complete resolution; (c) Ineffective: No change or worsening of rash and related symptoms.
- (2) Traditional Chinese medicine symptoms were evaluated using a TCM symptom scoring system <sup>[2]</sup>: (a) Mild (0–5 points): Only a few erythema or papules, generally not exceeding 1/3 of the body surface area; (b) Moderate (6–10 points): In addition to erythema and papules, there is also itching; (c) Severe (> 10 points): In addition to the above symptoms, there are blisters, vesicles, exudation, or erosion.
- (3) Adverse reactions were defined as adverse events related to the medication during the treatment process, including allergic reactions, nervous system reactions, hematologic system reactions, liver function damage, kidney function damage, myocardial infarction, vascular embolism, arrhythmia, gastrointestinal reactions, central nervous system damage, etc. The occurrence of any of the following adverse events was considered an adverse event <sup>[3]</sup>: (a) Anaphylactic shock; (b) Acute renal failure; (c) Hematologic system reactions (thrombocytopenic purpura, hemolytic anemia, neutropenia, aplastic anemia, leukopenia); (d) Nervous system reactions (dizziness, headache, ataxia, tremor, convulsions, seizures, coma).

### 2.4. Statistical analysis

Statistical analysis was performed using the SPSS19.0 software package. Measurement data conforming to a normal distribution were expressed as mean ± standard deviation (SD), and non-normally distributed data were expressed as M (P25–P75). Between-group comparisons were conducted using the *t*-test; count data were expressed as the number of cases (%) and compared using the  $\chi^2$  test or Fisher’s exact test.

## 3. Results

### 3.1. Comparison of overall effective rate between the two groups

The effective rate was 80.00% in the control group and 96.00% in the observation group. The difference in effective rates between the two groups was statistically significant ( $P < 0.05$ ), as shown in **Table 1**.

**Table 1.** Comparison of overall effective rate between the two groups [ $n$  (%)]

Group	Significant effect	Effective	Ineffective	Total effective rate
Control group ( $n = 50$ )	24 (48.00)	16 (32.00)	10 (20.00)	40 (80.00)
Observation group ( $n = 50$ )	29 (58.00)	19 (38.00)	2 (4.00)	48 (96.00)
$\chi^2$				6.061
$P$				0.014

### 3.2. Comparison of traditional Chinese medicine symptoms between the two groups

The onset time, duration, and significant effect time in the control group were ( $2.41 \pm 0.29$ ) days, ( $4.42 \pm 1.21$ )

days, and  $(5.45 \pm 0.29)$  days, respectively. In the observation group, these times were  $(2.44 \pm 0.21)$  days,  $(4.28 \pm 1.11)$  days, and  $(5.57 \pm 1.01)$  days, respectively. There was no statistically significant difference in the total onset duration and total duration between the two groups ( $P > 0.05$ ), as shown in **Table 2**.

**Table 2.** Comparison of TCM symptoms between the two groups (mean  $\pm$  SD; days)

Groups	Onset of action	Duration	Significant effect time
Control group ( $n = 50$ )	$2.41 \pm 0.29$	$4.42 \pm 1.21$	$5.45 \pm 0.29$
Observation group ( $n = 50$ )	$2.44 \pm 0.21$	$4.28 \pm 1.11$	$5.57 \pm 1.01$
<i>t</i>	0.091	0.603	0.808
<i>P</i>	$> 0.05$	$> 0.05$	$> 0.05$

### 3.3. Incidence of adverse events

During the observation period, no serious adverse events occurred in either group. In the control group, 14 cases experienced rash itching with pain, while 5 cases in the observation group experienced similar symptoms. The incidence rate was 28.00% in the control group, higher than 10.00% in the observation group ( $P < 0.05$ ), as shown in **Table 3**.

**Table 3.** Incidence of adverse events in the two groups

Groups	Number of adverse reactions	Incidence of adverse reactions
Control group ( $n = 50$ )	14	28.00%
Observation group ( $n = 50$ )	5	10.00%
$\chi^2$		5.263
<i>P</i>		0.022

## 4. Discussion

Targeted therapies for lung cancer have shown significant efficacy, but the associated issue of drug-induced rash cannot be overlooked. Drug-induced rashes not only impact the quality of life of patients but may also negatively affect the continuity and effectiveness of targeted therapies. Therefore, finding effective interventions for drug-induced rashes is crucial.

Drug-induced rash is a common clinical adverse reaction with a relatively high incidence, most of which can resolve spontaneously. Studies have shown that lung cancer-targeted drugs, including paclitaxel, gefitinib, and erlotinib, pose certain risks of inducing or exacerbating drug-induced rashes [4,5]. This study conducted a treatment observation on 100 lung cancer patients, showing an overall effective rate of 67.9% in the control group and 85.1% in the observation group, with no statistically significant difference ( $P > 0.05$ ).

As tumor-targeted therapy technology continues to advance and improve, the treatment outcomes for lung cancer have significantly improved, but the accompanying adverse reaction issues have also increased, with drug-induced rashes being the most common, accounting for over 50% of total adverse events [6]. Data indicate that the incidence of adverse reactions was 43.0% in the control group and 22.6% in the observation group, with a statistically significant difference ( $P < 0.05$ ); mild and moderate itching constituted the primary adverse symptoms, accounting for about 80% of all adverse symptoms [7,8].

This study compared the efficacy of Yinqiao Sanhuang Paste combined with traditional Chinese medicine

plaster with conventional drug therapy in treating lung cancer-targeted therapy-induced rashes. The results showed that the effective rate was 80.00% in the control group and 96.00% in the observation group, with a statistically significant difference between the two groups ( $P < 0.05$ ). The onset time, duration, and significant effect time were  $(2.41 \pm 0.29)$  days,  $(4.42 \pm 1.21)$  days, and  $(5.45 \pm 0.29)$  days in the control group, respectively, compared to  $(2.44 \pm 0.21)$  days,  $(4.28 \pm 1.11)$  days, and  $(5.57 \pm 1.01)$  days in the observation group, with no statistically significant difference in total onset duration and total duration between the two groups ( $P > 0.05$ ). The incidence rate was 28.00% in the control group, higher than 10.00% in the observation group ( $P < 0.05$ ), indicating that Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster has good efficacy and safety in treating lung cancer-targeted therapy-induced rashes. This study used a combination of Yinqiao Sanhuang Paste and traditional Chinese medicine plaster to intervene in lung cancer-targeted therapy-induced rashes. The results showed that this method significantly improved the rash symptoms in patients and alleviated their discomfort. This may be related to the heat-clearing, detoxifying, and swelling-reducing effects of Yinqiao Sanhuang Paste and the drug penetration effects of traditional Chinese medicine plaster. The combination of these methods can directly and effectively act on the affected area, promoting the resolution of the rash. TCM has unique advantages in treating drug-induced rashes<sup>[9]</sup>. First, TCM emphasizes overall conditioning, which can improve the patient's constitution and enhance the body's tolerance to drugs, thereby reducing the occurrence of drug-induced rashes<sup>[10]</sup>. Second, TCM has relatively few side effects, which do not impose an additional burden on the patient<sup>[11]</sup>. Finally, the diverse treatment methods in TCM can be tailored to the patient's specific conditions, enhancing the treatment's effectiveness.

Although this study achieved certain results, there are still some limitations. First, the sample size is relatively small, which may affect the reliability of the results. Future research should expand the sample size to further verify the intervention effects of Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster on drug-induced rashes. Second, this study did not conduct stratified analysis based on different types and severities of rashes; future research could explore the applicability of this method under different circumstances. Finally, this study did not delve into the mechanisms of action; future research could integrate molecular biology and pharmacology approaches to further elucidate the molecular mechanisms underlying the effects of Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster on treating drug-induced rashes.

In conclusion, Yinqiao Sanhuang Paste combined with traditional Chinese medicine plaster can effectively alleviate symptoms of drug-induced rashes in lung cancer patients undergoing targeted therapy and reduce the incidence of adverse reactions, providing a new intervention measure for clinical practice. Future research could further explore the applicability and mechanisms of this method to provide more reliable evidence for clinical application.

## Disclosure statement

The authors declare no conflict of interest.

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