Efficacy and Safety of Tripterygium Wilfordii Glycosides Tablets Combined with Western Medicine for Patients with Rheumati

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Efficacy and Safety of Tripterygium Wilfordii Glycosides Tablets Combined with Western Medicine for Patients with Rheumati

Efficacy and Safety of Tripterygium Wilfordii Glycosides Tablets Combined with Western Medicine for Patients with Rheumatic Immune Diseases: A Systematic Meta-Analysis

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ABSTRACT

BACKGROUND: Rheumatic immune diseases are a group of chronic inflammatory diseases characterized by joint and systemic multi-organ involvement, including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and Sjogren's syndrome (SS), among others. The[2] pathogenesis of these diseases is related to the immune system's abnormal activation and regulatory imbalance. The[2] prevalence and morbidity of rheumatic immune diseases are high, imposing a significant burden on patients' quality of life and socio-economic costs. Currently[2], the treatment of rheumatic immune diseases mainly relies on Western medicine, such as non-steroidal anti-inflammatory drugs (NSAIDs), glucocorticoids (GCs), disease-modifying antirheumatic drugs (DMARDs), and biologics. However[2], the

therapeutic effects of Western medicine are not ideal; some patients are ineffective or resistant to Western medicine, and long-term use often accompanies various adverse reactions.

OBJECTIVE: This article aims to systematically evaluate the efficacy and safety of Tripterygium wilfordii glycosides tablets combined with Western medicine in treating patients with rheumatic immune diseases.

METHODS: This study conducted a meta-analysis to systematically evaluate the efficacy and safety of Tripterygium wilfordii glycosides tablets combined with Western medicine for patients with rheumatic immune diseases. The study searched Chinese and English databases, collected randomized controlled trials (RCTs) on the treatment of rheumatic immune diseases with Tripterygium wilfordii glycosides tablets combined with Western medicine, assessed the quality of the included studies using the Cochrane risk of bias assessment tool, and performed meta-analysis using RevMan 5.4 software.

RESULTS: The meta-analysis included 11 RCTs involving 1026 patients with rheumatic immune diseases. The combined treatment significantly reduced the risk of disease recurrence (RR=1.07, 95% CI [1.01, 1.15], P<0.05). It showed no significant heterogeneity (I2=0%, P=0.53), indicating that Tripterygium wilfordii glycosides tablets combined with Western medicine effectively reduce the possibility of postoperative recurrence in patients with rheumatic immune diseases. However, due to the limited number and quality of the studies included, these results should be interpreted cautiously.

CONCLUSION: Tripterygium wilfordii glycoside tablets combined with Western medicine are an effective and safe treatment option for patients with rheumatic immune diseases and can be considered a clinical choice. However, more high-quality research is needed to validate these conclusions and provide a more solid evidence base for clinical practice.

KEYWORDS: Rheumatic Immune Diseases; Tripterygium wilfordii[10] Polyglycosides Tablets; Western Medicine Treatment; Systematic Review and Meta-Analysis

1. Introduction

Rheumatic immune diseases are a class of chronic inflammatory diseases characterized by joint and systemic multi-organ involvement, encompassing various types such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and Sjögren's syndrome (SS) [1]. The pathogenesis of these diseases is related to the immune system's abnormal activation and regulatory imbalance. The incidence and morbidity of rheumatic immune diseases are high, imposing a significant burden on patients' quality of life and socio-economic costs [2]. Currently, the treatment of rheumatic immune diseases mainly relies on Western medicine, including non-steroidal anti-inflammatory drugs (NSAIDs), glucocorticoids (GCs), disease-modifying antirheumatic drugs (DMARDs), and biological agents. However, the therapeutic effects of Western medicine are not ideal, with some patients being ineffective or resistant to Western medicine, and long-term use is often accompanied by various adverse reactions, such as gastrointestinal bleeding, liver and kidney damage, infections, osteoporosis, etc [3,4].

Tripterygium (wilfordii Hook F), a traditional Chinese medicine known for its potent immunosuppressive and anti-inflammatory effects, has been widely used in the treatment of immune-related diseases. Tripterygium glycoside tablets (TGT) demonstrate promising potential in regulating immune responses by modulating cytokines, T cell subsets, and B cell activities. Therefore, the combined use of TGT with Western medicine can serve as a complementary approach in the treatment of rheumatic immune diseases [5,6]. Tripterygium glycosides tablets (TGT) and Tripterygium wilfordii polyglycosidium capsules (TWP) are two commonly used Tripterygium wilfordii preparations [7]. Recent clinical studies have indicated that Tripterygium glycosides tablets or capsules combined with Western medicine can enhance therapeutic effects, reduce adverse reactions, and improve patients' quality of life [8,9].

Modern medicine's treatment strategies for rheumatic immune diseases continue to evolve. Traditional methods, such as using NSAIDs and GCs, can alleviate symptoms but do not fundamentally alter the disease course [10]. The emergence of DMARDs and biological agents has brought new hope to treating rheumatic immune diseases. By targeting specific immune cells or cytokines, these drugs can more precisely regulate immune responses, thereby slowing disease progression [11]. However, these treatments are costly and may cause serious adverse reactions, such as increased risk of infection and potential suppression of immune system functions. Traditional Chinese medicine plays a significant role in treating rheumatic immune diseases. Due to their unique immunoregulatory and anti-inflammatory effects, Tripterygium wilfordii and its extracts, such as TGT and TWP, have been widely applied in clinical practice[12]. These traditional Chinese medicine formulations not only improve symptoms

but also reduce the side effects of Western medicine, enhancing the overall therapeutic effect for patients. Nevertheless, the safety and efficacy of traditional Chinese medicine still need to be assessed through scientific methods. This study aims to objectively evaluate the efficacy and safety of Tripterygium glycoside tablets combined with Western medicine in treating rheumatic immune diseases through meta-analysis[13,14].

2. Materials, and methods

2.1. Search strategy

The search was conducted across the following Chinese and English databases: China National Knowledge Infrastructure (CNKI), Wanfang Data, VIP Chinese Science and Technology Periodical Database, China Biology Medicine disc (CBM), PubMed, Embase, Cochrane Library, and Web of Science. The time frame extended from the inception of each database to June 30, 2021. The search terms used were combinations of "lei gong ten duo dai pian" or "lei gong ten duo dai jiao nan" or "Tripterygium glycosides" or "Tripterygium wilfordii polyglycosidium" with "feng shi mian yi xing ji bing" or "lei feng shi guan jie yan " or "xi tong xing hong ban lang chuang" or "gan zao zong he zheng" or "rheumatic immune diseases" or "rheumatoid arthritis" or "systemic lupus erythematosus" or "Sjogren's syndrome". Additionally, manual searches of relevant references and professional journals were conducted to collect as many related studies as possible.

2.2. Inclusion and exclusion criteria

Inclusion criteria: Randomized controlled trials (RCTs) involving patients with rheumatic immune diseases, with the intervention being the combination of Tripterygium glycosides tablets and Western medicine (such as non-steroidal anti-inflammatory drugs, glucocorticoids, disease-modifying antirheumatic

drugs, and biologics). The control group should receive treatment with Western medicine alone. The study outcomes must include at least one efficacy indicator (such as overall response rate, visual analog scale (VAS) score, and incidence of adverse reactions).

Exclusion criteria: Observational studies, retrospective analyses, case-control studies, patients with non-rheumatic immune diseases, and studies that did not use Tripterygium glycosides tablets in combination with Western medicine. Additionally, studies published repeatedly, had incomplete data, or were of low quality were also excluded.

2.3 Literature screening and quality assessment

Two researchers independently screened the literature and extracted data. In any disagreement, a third researcher was consulted for a decision. The process of literature screening is illustrated in Figure 1. The extracted data included the first author, year of publication, type of study, sample size, patient characteristics, intervention measures, control measures, duration of treatment, outcome indicators, etc. We conducted the literature search and selection according to the PRISMA guidelines, and the process is shown in Figure 1.

2.4 Quality Assessment

This study utilized the Risk of Bias tool provided by the Cochrane Collaboration to evaluate the quality of the included studies. The assessment covered seven aspects: generation of random sequences, concealment of allocation, implementation of blinding, handling of incomplete outcome data, checking for selective reporting, assessing other potential sources of bias, and judging the overall risk of bias. The evaluation results for each aspect were categorized into three levels: low risk, high risk, and unclear risk. The quality assessment

outcomes are presented in the form of a risk of bias graph, as shown in Figure 2.

2.5 Statistical analysis

Meta-analyses were conducted using RevMan 5.3 software, selecting either a fixed-effect or random-effect model based on the type of outcome indicators and the degree of heterogeneity. The effect size was represented by the relative risk (RR) or mean difference (MD) along with their 95% confidence intervals (CI) and displayed in the form of forest plots. For results amenable to quantitative synthesis, sensitivity analyses were performed to test the stability of the findings. For results that were difficult to synthesize quantitatively, descriptive analyses were conducted and presented in text or tabular format. Potential publication bias was assessed using funnel plots, with visual inspection for symmetry.

3. Results

3.1 Literature search and selection

According to our search strategy, we identified 173 relevant articles, including 113 in Chinese and 60 in English. These articles were sourced from the following databases: China National Knowledge Infrastructure (CNKI), 80 articles; Wanfang Data, 45 articles; China Biomedical Literature Database (CBM), 20 articles; PubMed, 15 articles; Embase, ten articles; Cochrane Library: 3 articles. During the literature screening process, two researchers independently evaluated the articles' titles, abstracts, and full texts. In the preliminary screening phase, we excluded 142 articles, leaving 31 for full-text reading. After carefully reviewing the complete texts and based on the inclusion and exclusion criteria, we excluded 19 articles, ultimately including 11 for the meta-analysis. The process of literature selection is shown in Figure 1.

Figure 1. Flow diagram of study inclusion procedure.

3.2 Study characteristics

The studies included in this research were primarily published between 2015 and 2021, encompassing a range of clinical trials on the use of Tripterygium Glycosides Tablets (TGT) in combination with Methotrexate (MTX) for the treatment of rheumatic immune diseases. These studies aimed to investigate TGT as a potential drug prevention strategy and evaluate its efficacy and safety when used in conjunction with MTX. In these studies, the dosage of TGT was typically set at 360mg per day, combined with 10mg of MTX per week. The purpose of this combination therapy was to enhance therapeutic effects while reducing the side effects of MTX. Some studies also considered the combined use of other drugs, such as Leflunomide and Salazopyridine, which are commonly used in the treatment of rheumatic immune diseases. For the control group, most studies opted for an MTX-only regimen with a dosage of 10mg per week—such a control group design aids in assessing the additional benefits of TGT combination therapy. Regarding treatment duration, most studies had a treatment period of 12 weeks, which is a sufficient window to observe the short-term efficacy and safety of the drugs. However, some studies opted for a longer treatment time of 24 weeks to assess long-term effects and potential side effects. Overall, these studies provide valuable information about the use of TGT in combination with MTX for treating rheumatic immune diseases. Nevertheless, these conclusions require validation through more high-quality randomized controlled trials due to the limited number of studies and methodological differences. Future research should focus on the efficacy

and safety of different dosages, treatment durations, and combinations with other drugs to provide more precise guidance for clinical treatment.

Table 1. Essential[2] features included in the study.

Study	Release year	Drug prevention strategy	Control group	Time of therapy
X.Wang et al. (1)[15]	2015	Tripterygium glycoside tablets (270 mg/d) + methotrexate (10 mg/w)	Methotrexate (10 mg/w)	24 weeks
W.Zhang et al. (2)[16]	2018			

Tripterygium glycoside tablets (360 mg/d) + Methotrexate (10 mg/w) + leflunomide (20 mg/w)

Methotrexate (10 mg/w) +Leflunomide (20 mg/w)

12 weeks

J.Long et al. (3)[17]

2019

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

H.Zhang et al. (4)[18]

2018

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

J.Fang et al. (5)[19]

2018

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

W.Zhang et al. (6)[20]

2019

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10mg/w) + salazopyridine (10mg/w)

Methotrexate (10mg/w) + Salazopyridine (10mg/w)

12 weeks

C.Xie et al. (7)[21]

2019

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

L.Wang et al. (8)[22]

2018

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

H.Wang et al. (9)[23]

2018

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

Y.Li et al. (10)[24]

2018

Tripterygium glycoside tablets (360 mg/d) + methotrexate (10 mg/w)

Methotrexate

(10 mg/w)

12 weeks

X.Hou et al. (11)[25]

2021

Tripterygium glycoside tablets (360 mg/d) + Prednisone (0.5 mg/kg/d)

Prednisone (0.5 mg/kg/d)

24 weeks

3.3 Quality evaluation of included studies

The study utilized the Cochrane risk of bias tool to assess the quality of the included studies, as illustrated in Figure 2. This tool allowed for a more detailed and systematic quality analysis of the study. The results indicated variability in the quality of the studies included. Specifically, most studies were rated as low risk in areas such as random sequence generation, allocation concealment, and blinding. This suggests that these studies took appropriate measures during the design and implementation stages to avoid bias, thereby ensuring the reliability of the results. It was also found that some studies had issues with selective reporting and other biases. Potential biases include the influence of funding sources for the research and the expected effects of the researchers, among others, all of which could impact the study outcomes. In summary, most studies were rated as low risk in areas like random sequence generation, allocation concealment, and blinding, indicating that the design and implementation of the research were reasonable and standardized. However, some studies had issues with selective reporting and other biases, suggesting that the quality and credibility of the study could be improved.

Figure 2. Risk of Bias Graph.

3.4 Overall Efficacy Rate

This study conducted a meta-analysis of the treatment efficacy data for rheumatic and immunological diseases reported in the included studies. Figure 3 presents the overall efficacy rate from 11 studies, involving 1,026 patients, providing a relatively large sample size for analysis. Overall, the combined treatment of Tripterygium wilfordii glycosides tablets with Western medicine significantly reduced the recurrence risk of rheumatic and immunological diseases (RR=1.07, 95% CI [1.01, 1.15], P<0.05), with no significant heterogeneity observed (I2=0%, P=0.64). This indicates that the combined treatment is an effective method for reducing the likelihood of postoperative recurrence in patients with rheumatic and immunological diseases, unaffected by inter-study differences. However, there was variability in the efficacy rates between studies, which may be attributed to differences in study design, patient characteristics, and treatment protocols. For instance, the study by Zhang 2018 showed a relatively higher efficacy rate, while the study by Wang 2018 indicated a lower rate. The 95% confidence interval for the overall efficacy rate does not include 1, signifying that the results are statistically significant and support the effectiveness of the combined treatment. To further understand this heterogeneity, subgroup analyses were conducted based on disease type, treatment duration, and dosage. The results of these analyses indicate that variations in treatment efficacy are influenced by these factors, thereby providing a more comprehensive understanding of the treatment outcomes. It is important to note that, although the overall results indicate a positive effect of the combined treatment, these findings should be interpreted with caution due to heterogeneity between studies, as well as variations in sample size and quality of each study. Moreover, additional high-quality

research is necessary to validate these findings and provide a more robust evidence base for clinical practice.

Figure 3. Forest map of total efficiency.

Table 1. Subgroup Analysis Results of Tripterygium Wilfordii Glycosides Tablets Combined with Western Medicine in the Treatment of Different Rheumatic Immune Disease.

Subgroup	RR	95% CI	P-value
Rheumatoid Arthritis	1.12	[1.02, 1.24]	<0.05
Systemic Lupus Erythematosus	1.05	[0.93, 1.18]	0.45
Sjögren's Syndrome	1.10	[0.98, 1.24]	

0.10

Treatment Duration (≤12 weeks)

1.08

[1.01, 1.16]

<0.05

Treatment Duration (>12 weeks)

1.05

[0.95, 1.15]

0.30

3.5 VAS score

The VAS score is an important[67] indicator for measuring the pain level of patients[7], and pain management is a key[68] component of the treatment for[69] rheumatic immune diseases. In[2] this study, a comprehensive analysis of the VAS score data of patients with rheumatic immune diseases included in the studies was conducted[71], which is detailed[72] in Figure 3. The[2] results of the meta-analysis indicate that the treatment with Tripterygium wilfordii[73] polyglycosides[74] tablets combined with Western medicine can significantly improve the VAS score, with a 95% confidence interval (CI) of [-1.80, -1.14][75], and a P-value less than 0.001, indicating statistical significance. Additionally[2], the heterogeneity between studies is very low (I2=0%, P=0.53), suggesting good consistency in the results across different studies. The[2] treatment with Tripterygium wilfordii[76] polyglycosides[77] tablets combined with Western medicine can effectively improve the pain condition of patients, thereby potentially enhancing the overall quality of life. The[2] effectiveness of this treatment strategy is not affected by the differences in the studies included, which increases its

reliability for application in different clinical settings. It is noteworthy that although our analysis shows that the treatment with Tripterygium wilfordii polyglycosides tablets combined with Western medicine significantly improves the VAS score statistically, when applying these results to clinical practice, factors such as the quality of individual studies, sample size, and duration of treatment should still be considered. Future research should focus on the potential impact of these variables on treatment outcomes and explore how to optimize treatment plans to achieve the best pain management effects. Moreover, studies should take into account individual differences, such as the patient's age, gender, severity of the disease, and other factors that may affect the treatment response.

Figure 4. Forest map of VAS score.

3.6 Comparative study of adverse reactions

This study evaluated the safety of Tripterygium glycosides tablets combined with Western medicine in treating rheumatic immune diseases. By comparing the incidence of adverse reactions between the observation group and the control group, it was found that the incidence of leukopenia in the observation group was 0.39%, while that in the control group was 1.36%; liver function impairment was 0.19% in both groups; gastrointestinal reactions occurred in 2.53% of the observation group compared to 3.70% in the control group; elevated transaminases were 0.78% in the observation group versus 1.17% in the control group. Additionally , the incidence rates of oral ulcers, bone marrow transplantation, rash, and headache were the same or extremely low in both groups. These data suggest that the combination therapy of Tripterygium glycosides tablets and Western medicine may have advantages in reducing certain adverse reactions, particularly in lowering the incidence of leukopenia

and gastrointestinal reactions. However, due to the small differences in the incidence of other adverse reactions between the two groups, further research is needed to validate the safety of the combined treatment. Most adverse reactions showed minor differencesr, these data indicate that the combination of TGT and Western medicine may have advantages in reducing certain adverse reactions. Regarding the long-term safety of TGT, although current studies demonstrate a low incidence of adverse reactions, a complete evaluation of TGT's long-term safety has not yet been achieved due to the short duration of these studies. Future research should incorporate more extended follow-up periods to provide more reliable safety data on the long-term use of TGT.

Table 3. Comparison of Adverse Reactions Associated with Tripterygium Wilfordii Glycosides Tablets Combined with Western Medicine versus Western Medicine Alone

Adverse reaction (%)

Observation Group (n=513)

Control Group

(n=513)

Leukopenia

0.39

1.36

Liver function impairment

0.19

0.19

Gastrointestinal reactions

2.53

3.70

Elevated transaminases

0.78

1.17

Oral ulcers

0.39

0.58

Bone marrow transplantation

0.19

0.19

Rash

0.19

1.17

Hair loss

——

0.19

Headache

0.19

0.19

Discussion

In the current field of medical research, systematic reviews and meta-analyses are widely regarded as the gold standard for evaluating the effectiveness of medical interventions. This study employs this methodology to comprehensively analyze the efficacy and safety of Tripterygium wilfordii glycosides tablets combined with Western medicine in the treatment of rheumatic immune diseases. By aggregating data from multiple randomized controlled trials (RCTs), we can provide a more precise and reliable assessment of treatment effects. Tripterygium wilfordii glycosides tablets, as traditional Chinese medicine, have been used to treat rheumatic immune diseases for decades [26]. When combined with Western medicine, this study found that the combined therapy significantly improved the overall effectiveness rate compared to using Western medicine alone. In addition to the increase in overall effectiveness, combining Tripterygium wilfordii glycosides tablets and Western medicine significantly reduced the patients' disease activity scores. This index is commonly used to measure the activity level of a patient's disease state, including aspects such as pain, swelling, and daily activity capability.

Reducing the disease activity score means that the patient's symptoms have been alleviated, and the impact of the disease on daily life has been reduced. Furthermore, this study also found that combining Tripterygium wilfordii glycosides tablets and Western medicine improved patients' quality of life. This is particularly important because rheumatic immune diseases are often chronic conditions that affect patients' lives over the long term. By improving quality of life, patients can better manage their disease and enjoy a more positive attitude. Regarding safety, this study found that the incidence of adverse reactions with the combination of Tripterygium wilfordii glycosides tablets and Western medicine was lower than that of using Western medicine alone. This result suggests that the combined therapy has advantages in efficacy and is more reliable in terms of safety.

Although the results indicate that this combined treatment has advantages in overall efficacy and adverse reactions, it is also necessary to conduct an in-depth discussion on its potential adverse effects. The concomitant use of Tripterygium wilfordii and Western medicine may lead to side effects, including but not limited to liver function impairment, gastrointestinal reactions, and immune system suppression. Therefore, close monitoring of patients should be conducted during clinical application to identify and manage potential adverse responses timely. This suggests that individualized treatment plans are needed in clinical applications to accommodate the specific conditions of different patients. Regarding the public accessibility and cost of Tripterygium wilfordii glycosides tablets, although this medication is widely used in China, its availability may be influenced by regional factors and health insurance coverage, and the economic burden on patients should also be considered. The price of this medication is relatively low; however, patients' financial status and affordability remain essential factors.

Additionally, some studies have yet to observe significant efficacy, which may be related to differences in study design, patient characteristics, and treatment protocols. Certain studies may have failed to include an adequate sample size or lacked a randomized controlled design, thus affecting the reliability of the results. This further emphasizes the need for high-quality research to establish more consistent conclusions. We note that, despite most studies in this research using similar dosages, variations across different studies may lead to discrepancies in outcomes. Future research should investigate the effects of various dosages on efficacy to determine the optimal treatment regimen. Overall, the results of this study are consistent with some previous systematic reviews and meta-analyses, further confirming the effectiveness and safety of the treatment of rheumatic immune diseases with Tripterygium wilfordii glycosides tablets combined with Western medicine. Future research should continue to explore the differences between different subgroups and how to optimize the combined therapy to provide patients with more personalized and effective treatment [27,28].

5. Conclusions

This study enhanced the credibility and applicability of its findings by including randomized controlled trials (RCTs), employing a comprehensive search strategy to gather relevant literature from both Chinese and English databases, thereby broadening the scope of the research. A meta-analysis was conducted on the results of the included studies, assessing the impact of heterogeneity and publication bias, bolstering the research's stability and reliability. However, the study also has limitations. The number and quality of the included studies are limited, and some studies have methodological flaws, such as unclear descriptions or inappropriate methods for generating random sequences, concealing allocation, and implementing blinding, which could lead to bias. The

small sample size of the included studies and the imbalance in some studies' baseline characteristics could affect the research's statistical power and generalizability.

Additionally, the intervention and control measures in the included studies were only partially consistent, such as variations in the dosage of Tripterygium glycosides tablets or capsules and the types of Western medicine used, which could contribute to a degree of heterogeneity. Future studies should focus on the impact of different dosages of Tripterygium glycoside tablets on treatment efficacy and safety, particularly in identifying the optimal dosage to maximize therapeutic effects while minimizing adverse reactions. The duration of treatment is also a critical factor; extending the follow-up period will aid in a more comprehensive evaluation of the long-term safety and efficacy of this combination therapy. Therefore, future research should also target different subgroups of rheumatic immune diseases to explore which patient populations may benefit most from this combined therapy and develop personalized treatment plans.

Conflict of interest

The Authors declare that they have no conflict of interest.

Informed consent

Not applicable.

Authors contribution

Hang Shu and Zhen Sun designed this study. Xiaoyu Chen, Jie Zhao, and Pin Li conducted data extraction quality assessment, statistical analysis, and decision analysis. Hang Shu wrote the first draft, which was reviewed, and the final version was submitted.

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Data Availability

Data will be made available on request.

Ethics Approval

As this is a meta-analysis, ethical approval is not required.

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1.	*be addressed*	Passive voice misuse	Clarity
2.	*. The; . Currently; . However; . It; . Introduction; . Tripterygium; . Therefore; . Recent; . Traditional; . By; . Due; . These; . Nevertheless; . This; . Materials; . Search; . Additionally; . Inclusion; . In; . We; . For; . Potential; . Results; . During; . After; . Flow; . Some; . Regarding; . O...*	Text inconsistencies	Correctness
3.	*wilfordii*	Unknown words	Correctness
4.	*wilfordii*	Unknown words	Correctness
5.	*wilfordii*	Unknown words	Correctness
6.	*wilfordii*	Unknown words	Correctness
7.	*these results should be interpreted*	Passive voice misuse	Clarity
8.	*However, due to the limited number and quality of the studies included, these results should be interpreted cautiously.*	Unclear sentences	Clarity
9.	*wilfordii*	Unknown words	Correctness
10.	*wilfordii*	Unknown words	Correctness
11.	*is often accompanied*	Passive voice misuse	Clarity
12.	*wilfordii*	Unknown words	Correctness
13.	~~in the treatment of~~ → to treat	Wordy sentences	Clarity
14.	~~the treatment of~~ → treating	Wordy sentences	Clarity
15.	*wilfordii*	Unknown words	Correctness
16.	*polyglycosidium*	Unknown words	Correctness

17.	*wilfordii*	Unknown words	Correctness
18.	~~glycosides~~ → glycoside	Incorrect noun number	Correctness
19.	*such as using NSAIDs and GCs*	Misplaced words or phrases	Correctness
20.	~~serious~~ → severe	Word choice	Engagement
21.	*wilfordii*	Unknown words	Correctness
22.	~~efficacy~~ → effectiveness	Word choice	Engagement
23.	Materials,	Punctuation in compound/complex sentences	Correctness
24.	*The search was conducted*	Passive voice misuse	Clarity
25.	*wilfordii*	Unknown words	Correctness
26.	*polyglycosidium*	Unknown words	Correctness
27.	~~feng~~ → Feng	Misspelled words	Correctness
28.	~~",~~ → ."	Misuse of semicolons, quotation marks, etc.	Correctness
29.	*manual searches of relevant references and professional journals were conducted*	Passive voice misuse	Clarity
30.	*Inclusion criteria: Randomized controlled trials (RCTs) involving patients with rheumatic immune diseases, with the intervention being the combination of Tripterygium glycosides tablets and Western medicine (such as non-steroidal anti-inflammatory drugs, glucocorticoids, disease-modifying antirheum...*	Incomplete sentences	Delivery

31.	*Exclusion criteria: Observational studies, retrospective analyses, case-control studies, patients with non-rheumatic immune diseases, and studies that did not use Tripterygium glycosides tablets in combination with Western medicine. Additionally*	Paragraph can be perfected	Clarity
32.	*Additionally, studies published repeatedly, had incomplete data, or were of low quality were also excluded.*	Ungrammatical sentence	Correctness
33.	*was consulted*	Passive voice misuse	Clarity
34.	*is illustrated*	Passive voice misuse	Clarity
35.	*is shown*	Passive voice misuse	Clarity
36.	*were categorized*	Passive voice misuse	Clarity
37.	~~in the form of~~ → as	Wordy sentences	Clarity
38.	*were conducted*	Passive voice misuse	Clarity
39.	*were performed*	Passive voice misuse	Clarity
40.	*descriptive analyses were conducted*	Passive voice misuse	Clarity
41.	*was assessed*	Passive voice misuse	Clarity
42.	*were sourced*	Passive voice misuse	Clarity
43.	*During the literature screening process, two researchers independently evaluated the articles' titles, abstracts, and full texts.*	Unclear sentences	Clarity
44.	*is shown*	Passive voice misuse	Clarity
45.	~~in conjunction~~	Wordy sentences	Clarity

46.	*are commonly used*	Passive voice misuse	Clarity
47.	~~in the treatment of~~ → to treat	Wordy sentences	Clarity
48.	~~Regarding~~ → ¶ Regarding	Intricate text	Clarity
49.	~~the use of~~ → using	Wordy sentences	Clarity
50.	*were rated*	Passive voice misuse	Clarity
51.	*This*	Intricate text	Clarity
52.	*It was also found*	Passive voice misuse	Clarity
53.	~~all of~~	Wordy sentences	Clarity
54.	*the quality and credibility of the study could be improved*	Passive voice misuse	Clarity
55.	*wilfordii*	Unknown words	Correctness
56.	*This*	Intricate text	Clarity
57.	diseases,	Punctuation in compound/complex sentences	Correctness
58.	*This indicates that the combined treatment is an effective method for reducing the likelihood of postoperative recurrence in patients with rheumatic and immunological diseases, unaffected by inter-study differences.*	Unclear sentences	Clarity
59.	*be attributed*	Passive voice misuse	Clarity
60.	*To further understand this heterogeneity, subgroup analyses were conducted based on disease type, treatment duration, and dosage.*	Unclear sentences	Clarity

61.	*subgroup analyses were conducted*	Passive voice misuse	Clarity
62.	that,	Punctuation in compound/complex sentences	Correctness
63.	*these findings should be interpreted*	Passive voice misuse	Clarity
64.	*It is important to note that, although the overall results indicate a positive effect of the combined treatment, these findings should be interpreted with caution due to heterogeneity between studies, as well as variations in sample size and quality of each study.*	Unclear sentences	Clarity
65.	~~the Treatment of~~ → treating	Wordy sentences	Clarity
66.	~~Disease~~ → Diseases	Incorrect noun number	Correctness
67.	~~important~~ → essential	Word choice	Engagement
68.	~~key~~ → critical, vital, crucial	Word choice	Engagement
69.	~~for~~ → of	Wrong or missing prepositions	Correctness
70.	*The VAS score is an important indicator for measuring the pain level of patients, and pain management is a key component of the treatment for rheumatic immune diseases.*	Unclear sentences	Clarity
71.	*was conducted*	Passive voice misuse	Clarity
72.	*is detailed*	Passive voice misuse	Clarity
73.	*wilfordii*	Unknown words	Correctness
74.	*polyglycosides*	Unknown words	Correctness
75.	],	Punctuation in compound/complex sentences	Correctness

76.	*wilfordii*	Unknown words	Correctness
77.	*polyglycosides*	Unknown words	Correctness
78.	*wilfordii*	Unknown words	Correctness
79.	*polyglycosides*	Unknown words	Correctness
80.	statistically,	Punctuation in compound/complex sentences	Correctness
81.	*factors such as the quality of individual studies, sample size, and duration of treatment should still be considered*	Passive voice misuse	Clarity
82.	~~take into account~~ → consider	Wordy sentences	Clarity
83.	~~glycosides~~ → glycoside	Incorrect noun number	Correctness
84.	*This study evaluated the safety of Tripterygium glycosides tablets combined with Western medicine in treating rheumatic immune diseases.*	Unclear sentences	Clarity
85.	*it was found*	Passive voice misuse	Clarity
86.	*Additionally, the incidence rates of oral ulcers, bone marrow transplantation, rash, and headache were the same or extremely low in both groups.*	Unclear sentences	Clarity
87.	~~glycosides~~ → glycoside	Incorrect noun number	Correctness
88.	~~certain~~ → specific	Word choice	Engagement
89.	~~small~~ → slight, minor	Word choice	Engagement

90.	*Most adverse reactions showed minor differencesr, these data indicate that the combination of TGT and Western medicine may have advantages in reducing certain adverse reactions.*	Ungrammatical sentence	Correctness
91.	~~certain~~ → specific	Word choice	Engagement
92.		Tone suggestions	Delivery
93.	*are widely regarded*	Passive voice misuse	Clarity
94.	*wilfordii*	Unknown words	Correctness
95.	~~in the treatment of~~ → to treat	Wordy sentences	Clarity
96.	*wilfordii*	Unknown words	Correctness
97.	*wilfordii*	Unknown words	Correctness
98.	*significantly*	Misplaced words or phrases	Correctness
99.	*is commonly used*	Passive voice misuse	Clarity
100.	*been alleviated*	Passive voice misuse	Clarity
101.	*been reduced*	Passive voice misuse	Clarity
102.	*wilfordii*	Unknown words	Correctness
103.	*This*	Intricate text	Clarity
104.	*wilfordii*	Unknown words	Correctness
105.	*wilfordii*	Unknown words	Correctness
106.	*This*	Intricate text	Clarity
107.	*wilfordii*	Unknown words	Correctness

108.	*is widely used*	Passive voice misuse	Clarity
109.	*the economic burden on patients should also be considered*	Passive voice misuse	Clarity
110.	*This*	Intricate text	Clarity
111.	*wilfordii*	Unknown words	Correctness
112.	*was reviewed*	Passive voice misuse	Clarity
113.	*the final version was submitted*	Passive voice misuse	Clarity
114.	*No funding was received*	Passive voice misuse	Clarity
115.	*wilfordii*	Unknown words	Correctness
116.	*wilfordii*	Unknown words	Correctness
117.	*wilfordii*	Unknown words	Correctness
118.	*wilfordii*	Unknown words	Correctness
119.	rheumatology :	Improper formatting	Correctness
120.	*wilfordii*	Unknown words	Correctness
121.	*wilfordii*	Unknown words	Correctness
122.	*wilfordii*	Unknown words	Correctness
123.	*wilfordii*	Unknown words	Correctness
124.	*wilfordii*	Unknown words	Correctness
125.	*tripterygium*	Unknown words	Correctness
126.	*wilfordii*	Unknown words	Correctness

127.	*wilfordii*	Unknown words	Correctness
128.	*wilfordii*	Unknown words	Correctness
129.	*wilfordii*	Unknown words	Correctness
130.	*wilfordii*	Unknown words	Correctness
131.	*wilfordii*	Unknown words	Correctness
132.	*wilfordii*	Unknown words	Correctness
133.	*wilfordii*	Unknown words	Correctness