

World Journal of *Clinical Cases*

World J Clin Cases 2022 January 7; 10(1): 1-396



MINIREVIEWS

- 1 Omicron variant (B.1.1.529) of SARS-CoV-2: Mutation, infectivity, transmission, and vaccine resistance
Ren SY, Wang WB, Gao RD, Zhou AM
- 12 Hepatitis B virus reactivation in rheumatoid arthritis
Wu YL, Ke J, Zhang BY, Zhao D
- 23 Paradoxical role of interleukin-33/suppressor of tumorigenicity 2 in colorectal carcinogenesis: Progress and therapeutic potential
Huang F, Chen WY, Ma J, He XL, Wang JW

ORIGINAL ARTICLE**Case Control Study**

- 35 Changes in rheumatoid arthritis under ultrasound before and after sinomenine injection
Huang YM, Zhuang Y, Tan ZM
- 43 Benefits of multidisciplinary collaborative care team-based nursing services in treating pressure injury wounds in cerebral infarction patients
Gu YH, Wang X, Sun SS

Retrospective Study

- 51 Outcomes and complications of open, laparoscopic, and hybrid giant ventral hernia repair
Yang S, Wang MG, Nie YS, Zhao XF, Liu J
- 62 Surgical resection of intradural extramedullary tumors in the atlantoaxial spine *via* a posterior approach
Meng DH, Wang JQ, Yang KX, Chen WY, Pan C, Jiang H
- 71 Vancomycin lavage for the incidence of acute surgical site infection following primary total hip arthroplasty and total knee arthroplasty
Duan MY, Zhang HZ
- 79 Distribution of transient receptor potential vanilloid-1 channels in gastrointestinal tract of patients with morbid obesity
Atas U, Erin N, Tazegul G, Elpek GO, Yildirim B
- 91 Value of neutrophil-lymphocyte ratio in evaluating response to percutaneous catheter drainage in patients with acute pancreatitis
Gupta P, Das GC, Bansal A, Samanta J, Mandavdhare HS, Sharma V, Naseem S, Gupta V, Yadav TD, Dutta U, Varma N, Sandhu MS, Kochhar R

- 104** Influence of overweight and obesity on the mortality of hospitalized patients with community-acquired pneumonia
Wang N, Liu BW, Ma CM, Yan Y, Su QW, Yin FZ
- 117** Minimally invasive open reduction of greater tuberosity fractures by a modified suture bridge procedure
Kong LP, Yang JJ, Wang F, Liu FX, Yang YL
- 128** Increased levels of lactate dehydrogenase and hypertension are associated with severe illness of COVID-19
Jin ZM, Shi JC, Zheng M, Chen QL, Zhou YY, Cheng F, Cai J, Jiang XG
- 136** Age, alcohol, sex, and metabolic factors as risk factors for colonic diverticulosis
Yan Y, Wu JS, Pan S
- 143** Evaluation of right-to-left shunt on contrast-enhanced transcranial Doppler in patent foramen ovale-related cryptogenic stroke: Research based on imaging
Xiao L, Yan YH, Ding YF, Liu M, Kong LJ, Hu CH, Hui PJ
- 155** Characterization of focal hypermetabolic thyroid incidentaloma: An analysis with F-18 fluorodeoxyglucose positron emission tomography/computed tomography parameters
Lee H, Chung YS, Lee JH, Lee KY, Hwang KH
- Clinical Trials Study**
- 166** Low-dose intralesional injection of 5-fluorouracil and triamcinolone reduces tissue resident memory T cells in chronic eczema
Wu Y, Wang GJ, He HQ, Qin HH, Shen WT, Yu Y, Zhang X, Zhou ML, Fei JB
- Observational Study**
- 177** Alterations in blink and masseter reflex latencies in older adults with neurocognitive disorder and/or diabetes mellitus
Bricio-Barrios JA, Ríos-Bracamontes E, Ríos-Silva M, Huerta M, Serrano-Moreno W, Barrios-Navarro JE, Ortiz GG, Huerta-Trujillo M, Guzmán-Esquivel J, Trujillo X
- 189** Predicting adolescent perfectionism: The role of socio-demographic traits, personal relationships, and media
Livazović G, Kuzmanović K
- 205** Novel m.4268T>C mutation in the mitochondrial tRNA^{Leu} gene is associated with hearing loss in two Chinese families
Zhao LJ, Zhang ZL, Fu Y
- 217** Superior mesenteric venous thrombosis: Endovascular management and outcomes
Alnahhal K, Toskich BB, Nussbaum S, Li Z, Erben Y, Hakaim AG, Farres H
- Randomized Controlled Trial**
- 227** Zinc carnosine-based modified bismuth quadruple therapy vs standard triple therapy for *Helicobacter pylori* eradication: A randomized controlled study
Ibrahim N, El Said H, Choukair A

CASE REPORT

- 236** Acquired coagulation dysfunction resulting from vitamin K-dependent coagulation factor deficiency associated with rheumatoid arthritis: A case report
Huang YJ, Han L, Li J, Chen C
- 242** Intraoperative thromboelastography-guided transfusion in a patient with factor XI deficiency: A case report
Guo WJ, Chen WY, Yu XR, Shen L, Huang YG
- 249** Positron emission tomography and magnetic resonance imaging combined with computed tomography in tumor volume delineation: A case report
Zhou QP, Zhao YH, Gao L
- 254** Successful response to camrelizumab in metastatic bladder cancer: A case report
Xie C, Yuan X, Chen SH, Liu ZY, Lu DL, Xu F, Chen ZQ, Zhong XM
- 260** HER2 changes to positive after neoadjuvant chemotherapy in breast cancer: A case report and literature review
Wang L, Jiang Q, He MY, Shen P
- 268** Hyper-accuracy three-dimensional reconstruction as a tool for better planning of retroperitoneal liposarcoma resection: A case report
Ye MS, Wu HK, Qin XZ, Luo F, Li Z
- 275** Recurrent postmenopausal bleeding - just endometrial disease or ovarian sex cord-stromal tumor? A case report
Wang J, Yang Q, Zhang NN, Wang DD
- 283** Complex proximal femoral fracture in a young patient followed up for 3 years: A case report
Li ZY, Cheng WD, Qi L, Yu SS, Jing JH
- 289** Bilateral Hypertrophic Olivary Degeneration after Pontine Hemorrhage: A Case Report
Zheng B, Wang J, Huang XQ, Chen Z, Gu GF, Luo XJ
- 296** Clinical characteristics and outcomes of primary intracranial alveolar soft-part sarcoma: A case report
Chen JY, Cen B, Hu F, Qiu Y, Xiao GM, Zhou JG, Zhang FC
- 304** Removal of laparoscopic cerclage stitches *via* laparotomy and rivanol-induced labour: A case report and literature review
Na XN, Cai BS
- 309** Cerebral venous sinus thrombosis in pregnancy: A case report
Zhou B, Huang SS, Huang C, Liu SY
- 316** Eustachian tube teratoma: A case report
Li JY, Sun LX, Hu N, Song GS, Dou WQ, Gong RZ, Li CT

- 323** Protein-losing enteropathy caused by a jejunal ulcer after an internal hernia in Petersen's space: A case report
Yasuda T, Sakurazawa N, Kuge K, Omori J, Arai H, Kakinuma D, Watanabe M, Suzuki H, Iwakiri K, Yoshida H
- 331** Lunate dislocation with avulsed triquetral fracture: A case report
Li LY, Lin CJ, Ko CY
- 338** Clinical manifestations and prenatal diagnosis of Ullrich congenital muscular dystrophy: A case report
Hu J, Chen YH, Fang X, Zhou Y, Chen F
- 345** Diagnosis and guidance of treatment of breast cancer cutaneous metastases by multiple needle biopsy: A case report
Li ZH, Wang F, Zhang P, Xue P, Zhu SJ
- 353** Test of incremental respiratory endurance as home-based, stand-alone therapy in chronic obstructive pulmonary disease: A case report
Dosbaba F, Hartman M, Batalik L, Brat K, Plutinsky M, Hnatiak J, Formiga MF, Cahalin LP
- 361** Diagnostic and surgical challenges of progressive neck and upper back painless masses in Madelung's disease: A case report and review of literature
Yan YJ, Zhou SQ, Li CQ, Ruan Y
- 371** Suspected cerebrovascular air embolism during endoscopic esophageal varices ligation under sedation with fatal outcome: A case report
Zhang CMJ, Wang X
- 381** An atypical primary malignant melanoma arising from the cervical nerve root: A case report and review of literature
Shi YF, Chen YQ, Chen HF, Hu X
- 388** Epidural blood patch for spontaneous intracranial hypotension with subdural hematoma: A case report and review of literature
Choi SH, Lee YY, Kim WJ

ABOUT COVER

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INDEXING/ABSTRACTING

The *WJCC* is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for *WJCC* as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The *WJCC*'s CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Lin-YuTong Wang*; Production Department Director: *Xiang Li*; Editorial Office Director: *Jin-Lai Wang*.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Weekly

EDITORS-IN-CHIEF

Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

January 7, 2022

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INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Case Control Study

Changes in rheumatoid arthritis under ultrasound before and after sinomenine injection

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Author contributions: Huang YM design the experiment; Zhuang Y drafted the work, Tan ZM collected the data; Huang YM analysed and interpreted data, Zhuang Y and Tan ZM wrote the article.

Institutional review board

statement: This study was approved by the Huizhou Central People's Hospital Ethics Committee.

Informed consent statement: All study participants, or their legal guardian, provided informed written consent prior to study enrollment.

Conflict-of-interest statement: The authors declared that there is no conflict of interest between them.

Data sharing statement: No additional data are available.

STROBE statement: The authors have read the STROBE Statement, and the manuscript was prepared and revised according to the STROBE Statement.

Country/Territory of origin: China

Specialty type: Rheumatology

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Abstract

BACKGROUND

Rheumatoid arthritis (RA) is a prevalent clinical autoimmune disease that is commonly treated with diclofenac and methotrexate. In recent years, the application of traditional Chinese medicine in RA has received widespread attention; it promotes blood circulation, strengthens the immune system, and eliminates evil. The sinomenine preparation of Zhingqing Fengtongning is studied as a possible treatment for patients with RA.

AIM

To explore the value of sinomenine injection into the articular cavity for the treatment of RA.

METHODS

A total of 94 patients with RA treated from January 2019 to January 2021 were selected and divided into the study and control groups with 47 patients each using a simple random number table method. Both groups received conventional treatment with diclofenac sodium and methotrexate tablets. The control group received diproxone and lidocaine by intra-articular administration while the study group received an intra-articular administration of the sinomenine preparation of Zhengqing Fengning and lidocaine. χ^2 test was used to evaluate the therapeutic effect and synovial thickness, degree of pain through the visual analog scale (VAS), blood flow grade, arthritoinflammatory indexes [rheumatoid factor (RF), C-reactive protein (CRP), and erythrocyte sedimentation rate (ESR)] before and after treatment in the two groups.

RESULTS

The total effective rate of the study group (93.62%) was higher than that of the control group (78.72%) ($P < 0.05$). Before treatment, there were no significant differences between the two groups in terms of synovial thickness, VAS score, blood flow grading, levels of RF, and ESR ($P > 0.05$). After treatment, the synovial

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0

Grade B (Very good): B

Grade C (Good): C

Grade D (Fair): 0

Grade E (Poor): 0

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Received: August 26, 2021

Peer-review started: August 26, 2021

First decision: September 29, 2021

Revised: October 14, 2021

Accepted: November 26, 2021

Article in press: November 26, 2021

Published online: January 7, 2022

P-Reviewer: Khanna NN, Tanaka M

S-Editor: Wang JL

L-Editor: A

P-Editor: Wang JL



thickness and VAS score were significantly lower ($P < 0.05$) in the study group than in the control group (2.05 ± 0.59 mm *vs* 2.87 ± 0.64 mm and 2.11 ± 0.62 *vs* 2.90 ± 0.79 scores, respectively). The rate of blood flow at grade 0 in the study group (76.60%) was higher than that in the control group (57.45%), and the rate of blood flow at grade I (10.64%) was lower than that in the control group (31.91%) ($P < 0.05$). Furthermore, the levels of RF (55.61 ± 6.13 U/mL), CRP (11.43 ± 3.59 mg/L), and ESR (29.60 ± 5.56 mm/h) in the study group were lower than those in the control group (73.04 ± 9.23 U/mL, 15.07 ± 4.06 mg/L, 36.64 ± 6.10 mm/h, respectively) ($P < 0.05$).

CONCLUSION

Sinomenine administration of Zhengqing Fengtongning in the articular cavity with conventional treatment of RA can improve ultrasonographic blood flow and synovial thickness, reduce pain, regulate inflammation, and enhance therapeutic effect.

Key Words: Rheumatoid arthritis; Articular injection; Sinomenine; Ultrasonic changes; Inflammatory factors; Zhengqing Fengtongning

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Core Tip: Sinomenine administration of Zhengqing Fengtongning in the articular cavity can improve blood flow and synovial thickness, reduce pain, regulate inflammation, and enhance therapeutic effect. The drug preparation was administered with diclofenac and methotrexate. Comparison of outcomes was done between a study group and a matched control group.

Citation: Huang YM, Zhuang Y, Tan ZM. Changes in rheumatoid arthritis under ultrasound before and after sinomenine injection. *World J Clin Cases* 2022; 10(1): 35-42

URL: <https://www.wjgnet.com/2307-8960/full/v10/i1/35.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v10.i1.35>

INTRODUCTION

Rheumatoid arthritis (RA) is a prevalent clinical autoimmune disease with symmetrical, chronic, and peripheral joint involvement. It may occur in any age group, and may affect the physical health and quality of life of patients[1-3]. In recent years, there is a continuous increase in the incidence of RA; it has become an important cause of disability. Therefore, studies on safe and effective interventions for RA are essential [4,5].

Currently, glucocorticoids, non-steroidal anti-inflammatory drugs, hydroxychloroquine, and methotrexate are used to treat RA patients. The said medications alleviate clinical symptoms but long-term use increases the risk of adverse reactions, such as peptic ulcer and gastrointestinal discomfort, leading to poor patient compliance and termination of the medication[6-8]. In recent years, the application of traditional Chinese medicine in RA has received widespread attention. Traditional Chinese medicine mainly follows the principle of disease treatment as promotion of blood circulation, strengthening of the immune system, and elimination of evil. Sinomenine has immunosuppressive, analgesic, and anti-inflammatory effects[9,10].

This study explores the effects of sinomenine injection into the articular cavity for the treatment of RA.

MATERIALS AND METHODS**General information**

This study was approved by the Ethics Committee of the hospital. A total of 94 patients with RA treated at our hospital between January 2019 and January 2021 were

selected. The inclusion criteria were as follows: (1) Meeting the RA diagnostic criteria in the 2018 Guidelines for the Diagnosis and Treatment of Rheumatoid Arthritis in China[11]; (2) RA in the active stage; (3) good cognitive and communication skills; (4) good cooperation to complete the research; and (5) both the patients and their family members gave their informed consent to participate in this study. Exclusion criteria: (1) Allergic constitution; (2) relevant treatment within 1 mo before participating in the study; (3) gastrointestinal bleeding; (4) mental illness; (5) lactation and pregnancy; (6) blood system lesions; (7) systemic lupus erythematosus and other rheumatic immune system diseases; and (8) severe knee osteoarthritis and joint deformity. Participants were divided into a study group and a control group with 47 patients each according to the simple random number table method. In the study group, there were 21 men and 26 women, aged 35–69 years, with an average age of 51.59 ± 12.87 years old. The course of disease ranged from 8 mo to 7 years, with an average of 3.89 ± 1.37 years. The control group had 18 males and 29 females, aging from 32 to 72, with an average of 53.13 ± 13.55 years. The disease course ranged from 6 mo to 8 years, with an average of 4.01 ± 1.50 years. The clinical data of sex, age, and course of disease were comparable between the two groups ($P > 0.05$).

Methods

Both groups have received conventional treatment with diclofenac sodium tablets (manufactured by Shanxi Jinxin Shuanghe Pharmaceutical Co., Ltd., National Medicine Approval No. H21021130), 75 mg per dose given twice a day and methotrexate tablets (manufactured by Shanghai Shangyao Xinyi Pharmaceutical Co., Ltd., National Medicine Approval No. H31020644), 2.5 mg per dose given thrice a day. The control group received an arthro-cavitary injection of 1 mL dexone (Chongqing Huabang Pharmaceutical Co., Ltd., National Medicine Approval No. H20093412) + 1-mL lidocaine (Xi'an Fenghua Pharmaceutical Co., Ltd., National Medicine Approval No. H61020861). In the study group, the patients were treated with 1.4-mL sinomenine Zhengqing Fengtongning injection (Hunan Zhengqing Pharmaceutical Group Co., Ltd., National Medicine Approval No. Z43020279) + 1-mL lidocaine. Both groups were treated for 12 wk.

Indicators

Statistical analysis of the therapeutic effects of the two groups was done after 12 wk of treatment. A “significant effect” was noted when an 80% improvement was observed in the erythrocyte sedimentation rate (ESR) and other laboratory indicators, recovery of normal work and life, and disappearance of joint swelling, tenderness, and other symptoms. It was “effective” when the range of improvement of the ESR and other laboratory examination indexes were at 50%-79%, with partial recovery of work and life, and considerable symptom relief of joint swelling and tenderness. It was “ineffective” when the improvement of the ESR and other laboratory indicators were less than 50%, with difficulty in independent work and life, and without symptom relief of joint swelling and tenderness. The effective rate is computed as (significant effect + effective)/total number of cases $\times 100\%$ [12]. Another statistical analysis was done to compare the synovial thickness, degree of pain, and blood flow grade of the two groups before and after treatment. The degree of pain was evaluated according to the visual analog scale (VAS) scale, with a score ranging from 0 to 10 points; the higher the score, the stronger the feeling of pain. The synovial thickness was measured by ultrasonic examination. Color Doppler technology was used to detect the intensity of intra-synovial blood flow energy, and the semi-quantitative classification was performed: grade 0 indicated synovial blood flow signal, grade I indicated single blood vessel signal, grade II indicated that the vascular fusion signal was less than 1/2 of the region, and grade III indicated that the vascular fusion signal was larger than 1/2 of the region. Finally, statistical analysis of arthritis indicators was done, including rheumatoid factor (RF), C-reactive protein (CRP), and ESR.

Statistical analysis

SPSS 22.0, was used to analyze the data. Measurement data are expressed as mean \pm SD, *t*-test, enumeration data with *n* (%), and χ^2 test. Statistically significant difference was set at $P < 0.05$.

RESULTS

Comparison of therapeutic effects between the two groups

Table 1 shows that the effective rate of the study group (93.62%) was significantly higher than that of the control group (78.72%) ($P < 0.05$).

Comparison of synovial thickness and VAS scores between the two groups

There was no significant difference ($P > 0.05$) in synovial thickness (5.29 ± 1.44 mm) and VAS score (7.01 ± 1.38) between the study group and the control group (5.50 ± 1.32 mm, 6.89 ± 1.50 mm, respectively). After treatment, synovial thickness (2.05 ± 0.59 mm) and VAS score (2.11 ± 0.62) in the study group were lower than those of the control group (2.87 ± 0.64 mm and 2.90 ± 0.79 scores, respectively, $P < 0.05$) (Table 2).

Comparison of blood flow grading between the two groups

Before treatment, there was no significant difference in blood flow grading between the two groups ($P > 0.05$). After treatment, the rate of blood flow at grade 0 in the study group (76.60%) was higher than that in the control group (57.45%), and the rate of blood flow at grade I (10.64%) was lower than that in the control group (31.91%), with $P < 0.05$ (Table 3).

Comparison of arthro-inflammatory indexes between the two groups

Before treatment, the levels of RF (161.39 ± 15.06 U/mL), CRP (34.10 ± 6.99 mg/L), and ESR (80.71 ± 7.11 mm/h) in the study group were not significantly different from those in the control group (158.91 ± 12.79 U/mL, 32.63 ± 7.29 mg/L, and 78.65 ± 6.70 mm/h, respectively, with $P > 0.05$). After treatment, the levels of RF (55.61 ± 6.13 U/mL), CRP (11.43 ± 3.59 mg/L), and ESR (29.60 ± 5.56 mm/h) in the study group were lower than those in the control group (73.04 ± 9.23 U/mL, 15.07 ± 4.06 mg/L, 36.64 ± 6.10 mm/h, respectively, with $P < 0.05$) (Table 4).

DISCUSSION

RA is an autoimmune disease driven by antigens and co-participated in by multiple cells, including dendritic cells, chondrocytes, fibroblasts, B cells, T cells, and macrophages[13]. The treatment of this disease focuses on improving joint function and controlling disease progression[14]. Methotrexate is a commonly used anti-rheumatic drug to inhibit DNA biosynthesis and to block cell proliferation. It can be used in the S phase of the cell cycle to promote apoptosis, thus exerting therapeutic effects through anti-inflammatory and immune regulation mechanisms[15]. Diclofenac is a non-steroidal anti-inflammatory drug that regulates the inflammatory response in the active stage of RA. However, it is difficult to eliminate the cause of the induced inflammation[16]. Diprosans are widely used in RA. It has anti-inflammatory, anti-allergic, and anti-rheumatic effects. After injection, the diprospan can be rapidly absorbed and can remain in the body for a long time for longer efficiency. However, it is difficult to achieve clinical expectations using these treatment modalities. Traditional Chinese medicine has unique cognitive and therapeutic advantages in RA treatment, which classifies RA into the categories of "Lijiefeng" (arthritis), "Gubi" (heumatism), and "Bi" (rheumatism). The pathogenesis is explained by congenital deficiency, invasion of the wind-cold-dampness poison, improper diet, stagnation of meridians, and stagnation of qi and blood stasis. Therefore, the basic principles of disease treatment are to promote blood circulation, relieve pain, detoxify and dredge collaterals, dispel wind, and remove dampness[17]. Sinomenine, an alkaloid extracted from *Caulis sinomenii*, can inhibit bone destruction and inflammatory reactions, relax tendons and activate blood, expel wind, and remove dampness without inducing significant side effects[18]. Zhengqing Fengtongning injection is a Chinese medicinal preparation extracted from sinomenine. In this study, the sinomenine preparation of Zhengqing Fengtongning was administered through intraarticular injection to treat RA patients. The results showed that the synovial thickness and VAS score in the study group were lower than those in the control group, and there was better blood flow grade than the control group; the total effective rate was higher than the control group ($P < 0.05$). This indicated that the sinomenine preparation of Zhengqing Fengtongning has a high potential for RA treatment. It could improve blood flow, relieve pain, reduce synovial membrane thickness, and enhance the overall therapeutic effect. Sinomenine has anti-inflammatory and glucocorticoid-like effects that can

Table 1 Comparison of therapeutic effects, *n* (%)

Group	Number of cases	Significantly effective	Improved	Ineffective	Total effective rate
Study group	47	29 (61.70)	15 (31.91)	3 (6.38)	44 (93.62)
Control group	47	21 (44.68)	16 (34.04)	10 (21.28)	37 (78.72)
χ^2 value					4.374
<i>P</i> value					0.036

Table 2 Comparison of synovial membrane thickness and visual analog scale scores

Timing	Group	Number of cases	Synovial thickness (mm, mean \pm SD)	VAS score (mean \pm SD)
Before treatment	Study group	47	5.29 \pm 1.44	7.01 \pm 1.38
	Control group	47	5.50 \pm 1.32	6.89 \pm 1.50
	<i>t</i> value		0.737	0.404
	<i>P</i> value		0.463	0.687
After treatment	Study group	47	2.05 \pm 0.59	2.11 \pm 0.62
	Control group	47	2.87 \pm 0.64	2.90 \pm 0.79
	<i>t</i> value		6.458	5.393
	<i>P</i> value		0.000	0.000

VAS: Visual analog scale.

Table 3 Comparison of blood flow classification, *n* (%)

Timing	Group	Number of cases	Grade 0	Grade I	Grade II	Grade III
Before treatment	Study group	47	25 (53.19)	12 (25.53)	7 (14.89)	3 (6.38)
	Control group	47	23 (48.94)	15 (31.91)	5 (10.64)	4 (8.51)
	χ^2 value		0.170	0.468	0.382	0.000
	<i>P</i> value		0.680	0.494	0.536	1.000
After treatment	Study group	47	36 (76.60)	5 (10.64)	5 (10.64)	1 (2.13)
	Control group	47	27 (57.45)	15 (31.91)	3 (6.38)	2 (4.26)
	χ^2 value		3.899	6.351	0.545	0.000
	<i>P</i> value		0.048	0.012	0.460	1.000

selectively inhibit the activity of cyclooxygenase-2, reduce the synthesis of prostaglandin E2, and promote the secretion of adrenocortical hormone. It can also exert nonspecific anti-inflammatory effects, reduce blood viscosity, correct fibrinolysis disorder, improve blood flow velocity, regulate microcirculation, and achieve immunosuppression, anti-inflammatory, analgesic, and antioxidation effects. It can also be used as a histamine release agent. It can regulate the immune system, promote detumescence and analgesia, dispel wind and remove dampness, and activate blood and dredging collaterals. These effects improve vascular permeability and blood circulation, and reduce inflammatory swelling.

Ultrasound is an important diagnostic and therapeutic evaluation measure for RA. In this study, there was an abnormal increase of suprapatellar bursa effusion in the active stage of RA, synovial thickening, and relatively rich blood flow signals in the thickened synovium. After the sinomenine treatment, the inflammation and increase in the synovial fluid were controlled, the exudate in the joint cavity was significantly decreased, the synovial membrane became thinner, and the blood flow signals in the synovial fluid disappeared. Therefore, this study confirmed that sinomenine preparation could also improve ultrasound changes in RA patients.

Table 4 Comparison of arthro-inflammatory indexes (mean ± SD)

Timing	Group	Number of cases	RF (U/mL)	CRP (mg/L)	ESR (mm/h)
Before treatment	Study group	47	161.39 ± 15.06	34.10 ± 6.99	80.71 ± 7.11
	Control group	47	158.91 ± 12.79	32.63 ± 7.29	78.65 ± 6.70
	<i>t</i> value		0.861	0.998	1.446
	<i>P</i> value		0.392	0.321	0.152
After treatment	Study group	47	55.61 ± 6.13	11.43 ± 3.59	29.60 ± 5.56
	Control group	47	73.04 ± 9.23	15.07 ± 4.06	36.64 ± 6.10
	<i>t</i> value		10.785	4.605	5.848
	<i>P</i> value		0.000	0.000	0.000

RF: rheumatoid factor; CRP: C-reactive protein; ESR: erythrocyte sedimentation rate.

Meanwhile, CRP and ESR are important indicators for evaluating RA. CRP is a glycoprotein synthesized by hepatocytes that increases during tissue necrosis or injury/inflammation. It also participates in the non-classical activation pathway of complement, leading to immune regulation, promotion of phagocytosis, and complement activation. The increase in ESR is closely related to the increase in the inflammatory factor content in the body during the active stage of RA. RF is an autoantibody targeting denatured immunoglobulin G in RA patients. It is mostly distributed in the joint fluid and serum of RA patients. It can be used as an important indicator for the diagnosis and efficacy evaluation of RA treatment[19]. The results of this study showed that the levels of CRP, ESR, and RF in the study group after treatment were lower than those in the control group. These laboratory results showed that the sinomenine preparation of Zhengqing Fengtongning injected into the joint cavity has high application value in RA treatment.

CONCLUSION

In summary, the administration of the sinomenine preparation of Zhengqing Fengtongning injection into the articular cavity after the administration of diclofenac and methotrexate tablets can effectively improve blood flow and synovial thickness, relieve pain and inflammation, and improve the overall therapeutic effect. However, this study did not group and compare the treatment of patients with different disease levels. Therefore, the difference in the efficacy of intra-articular injection of sinomenine preparation Zhengqing fengtongning injection in the treatment of RA with different conditions needs further exploration and confirmation.

ARTICLE HIGHLIGHTS

Research background

Rheumatoid arthritis (RA) is a popular clinical autoimmune disease. Diclofenac and methotrexate are usually used for treatment. In recent years, the application of Chinese medicine in RA has received widespread attention. The role of alkali preparations in this field has also received attention.

Research motivation

Explore the treatment methods of RA and broaden the application of Chinese medicine treatment in the field of RA.

Research objectives

This study aimed to study the therapeutic value of sinomenine preparations for RA.

Research methods

A total of 94 RA patients who received treatment from January 2019 to January 2021 were selected for a case-control study.

Research results

The total effective rate of the study group was higher than that of the control group.

Research conclusions

Sinomenine administration of Zhengqing Fengtongning in the articular cavity with conventional treatment of RA can improve ultrasonographic blood flow and synovial thickness, reduce pain, regulate inflammation, and enhance therapeutic effect.

Research perspectives

Sinomenine preparations can have a wider range of applications in the treatment of RA.

REFERENCES

- 1 **Zhang SH**, Zhou YD, He HX. [Bioequivalence of enteric coated tablet of Zhengqing Fengtongning]. *Zhongguo Zhong Yao Za Zhi* 2008; **33**: 683-685 [PMID: 18590201]
- 2 **Favalli EG**, Becciolini A, Biggioggero M, Bertoldi I, Crotti C, Raimondo MG, Marchesoni A. The role of concomitant methotrexate dosage and maintenance over time in the therapy of rheumatoid arthritis patients treated with adalimumab or etanercept: retrospective analysis of a local registry. *Drug Des Devel Ther* 2018; **12**: 1421-1429 [PMID: 29872265 DOI: 10.2147/DDDT.S162286]
- 3 **Takanashi S**, Nakazato T, Aisa Y, Ito C, Arakaki H, Osada Y, Hirano M, Mori T. The prognostic value of positron emission tomography/computed tomography in rheumatoid arthritis patients with methotrexate-associated lymphoproliferative disorders. *Ann Hematol* 2018; **97**: 1611-1618 [PMID: 29713747 DOI: 10.1007/s00277-018-3327-4]
- 4 **Zeng C**, Shuai YF, Li X. [Meta-analysis of efficacy and safety of sinomenine combined with methotrexate in treatment of rheumatoid arthritis]. *Zhongguo Zhong Yao Za Zhi* 2021; **46**: 214-224 [PMID: 33645073 DOI: 10.19540/j.cnki.cjmm.20200322.501]
- 5 **Schmitz S**, Adams R, Walsh CD, Barry M, FitzGerald O. A mixed treatment comparison of the efficacy of anti-TNF agents in rheumatoid arthritis for methotrexate non-responders demonstrates differences between treatments: a Bayesian approach. *Ann Rheum Dis* 2012; **71**: 225-230 [PMID: 21960560 DOI: 10.1136/annrheumdis-2011-200228]
- 6 **Chen XM**, Huang RY, Huang QC, Chu YL, Yan JY. Systemic Review and Meta-Analysis of the Clinical Efficacy and Adverse Effects of Zhengqing Fengtongning Combined with Methotrexate in Rheumatoid Arthritis. *Evid Based Complement Alternat Med* 2015; **2015**: 910376 [PMID: 26379753 DOI: 10.1155/2015/910376]
- 7 **Tanaka Y**, Wada K, Takahashi Y, Hagino O, van Hoogstraten H, Graham NMH, Kameda H. Correction to: Sarilumab plus methotrexate in patients with active rheumatoid arthritis and inadequate response to methotrexate: results of a randomized, placebo-controlled phase III trial in Japan. *Arthritis Res Ther* 2019; **21**: 99 [PMID: 30992058 DOI: 10.1186/s13075-019-1887-x]
- 8 **Kurita D**, Miyoshi H, Ichikawa A, Kato K, Imaizumi Y, Seki R, Sato K, Sasaki Y, Kawamoto K, Shimono J, Yamada K, Muto R, Kizaki M, Nagafuji K, Tamaru JI, Tokuhira M, Ohshima K. Methotrexate-associated Lymphoproliferative Disorders in Patients With Rheumatoid Arthritis: Clinicopathologic Features and Prognostic Factors. *Am J Surg Pathol* 2019; **43**: 869-884 [PMID: 31116708 DOI: 10.1097/PAS.0000000000001271]
- 9 **Yao RB**, Zhao ZM, Zhao LJ, Cai H. Sinomenine inhibits the inflammatory responses of human fibroblast-like synoviocytes via the TLR4/MyD88/NF- κ B signaling pathway in rheumatoid arthritis. *Pharmazie* 2017; **72**: 355-360 [PMID: 29442025 DOI: 10.1691/ph.2017.6946]
- 10 **Zhang YL**, Ouyang GL, Xiao LB. [Research advances of mechanism of sinomenine in treating rheumatoid arthritis]. *Zhong Xi Yi Jie He Xue Bao* 2009; **7**: 775-778 [PMID: 19671418 DOI: 10.3736/jcim20090813]
- 11 **Liu W**, Zhang Y, Zhu W, Ma C, Ruan J, Long H, Wang Y. Sinomenine Inhibits the Progression of Rheumatoid Arthritis by Regulating the Secretion of Inflammatory Cytokines and Monocyte/Macrophage Subsets. *Front Immunol* 2018; **9**: 2228 [PMID: 30319663 DOI: 10.3389/fimmu.2018.02228]
- 12 **Ding CZ**, Yao Y, Fang Y, Sun LY, Wang Y. [Effects of zhengqing fengtongning tablet and methotrexate on the serum OPG/RANKL and IL-17 of collagen-induced arthritis rats]. *Zhongguo Zhong Xi Yi Jie He Za Zhi* 2013; **33**: 256-260 [PMID: 23646485]
- 13 **Claxton L**, Taylor M, Soonasra A, Bourret JA, Gerber RA. An Economic Evaluation of Tofacitinib Treatment in Rheumatoid Arthritis After Methotrexate or After 1 or 2 TNF Inhibitors from a U.S. Payer Perspective. *J Manag Care Spec Pharm* 2018; **24**: 1010-1017 [PMID: 29897007 DOI: 10.18553/jmcp.2018.17220]
- 14 **Genovese M**, Westhovens R, Meuleners L, Van der Aa A, Harrison P, Tasset C, Kavanaugh A. Effect

- of filgotinib, a selective JAK 1 inhibitor, with and without methotrexate in patients with rheumatoid arthritis: patient-reported outcomes. *Arthritis Res Ther* 2018; **20**: 57 [PMID: 29566740 DOI: 10.1186/s13075-018-1541-z]
- 15 **Bae SC**, Lee YH. TYMS polymorphisms and responsiveness to or toxicity of methotrexate in rheumatoid arthritis. *Z Rheumatol* 2018; **77**: 824-832 [PMID: 29380036 DOI: 10.1007/s00393-018-0419-4]
- 16 **Mutru O**, Penttilä M, Pesonen J, Salmela P, Suhonen O, Sonck T. Diclofenac sodium (Voltaren) and indomethacin in the ambulatory treatment of rheumatoid arthritis: a double-blind multicentre study. *Scand J Rheumatol Suppl* 1978; 51-56 [PMID: 356246 DOI: 10.3109/03009747809097217]
- 17 **Sun Y**, Yao Y, Ding CZ. A combination of sinomenine and methotrexate reduces joint damage of collagen induced arthritis in rats by modulating osteoclast-related cytokines. *Int Immunopharmacol* 2014; **18**: 135-141 [PMID: 24287449 DOI: 10.1016/j.intimp.2013.11.014]
- 18 **Xu W**, Chen S, Wang X, Wu H, Tahara K, Tanaka S, Sugiyama K, Yamada H, Sawada T, Hirano T. Effects of sinomenine on the proliferation, cytokine production, and regulatory T-cell frequency in peripheral blood mononuclear cells of rheumatoid arthritis patients. *Drug Dev Res* 2021; **82**: 251-258 [PMID: 33006164 DOI: 10.1002/ddr.21748]
- 19 **Chen WJ**, Li TX, Wang XY, Xue ZP, Lyu C, Li HZ, Li YQ, Fan YF, Tian YG, Yang J, Guo MQ, Wang JX, Wu HY, Zhang YQ, Lin N. [Meta-analysis of RCT studies on clinical efficacy of single administration of Tripterygium Glycosides Tablets or combined administration with methotrexate against rheumatoid arthritis]. *Zhongguo Zhong Yao Za Zhi* 2020; **45**: 791-797 [PMID: 32237478 DOI: 10.19540/j.cnki.cjcmm.20191115.503]



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