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Review Article

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Progress of Tripterygium Wilfordii in Treating Rheumatoid Arthritis

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Abstract

Rheumatoid arthritis (RA) is a common autoimmune disease, which brings great pain and economic burden to patients. Tripterygium wilfordii, a traditional Chinese herbal medicine, has long been used to treat inflammatory diseases, including RA. Tripterygium wilfordii has remarkable curative effect on rheumatoid arthritis, and has no obvious side effects. It provides a new choice for the treatment of rheumatoid arthritis. This study summarized the feasibility of Tripterygium wilfordii in treating.

Keywords: Tripterygium Wilfordii, Rheumatoid Arthritis, Clinical Treatment, Progress.

Research Background

Rheumatoid arthritis (RA) is a progressive and chronic autoimmune disease, which is more common in middle-aged and elderly people. The interphalangeal joint, metacarpophalangeal joint, wrist and other small joints at the proximal end of the finger are the first to get sick, showing symmetrical joint involvement, and finally there are typical joint inflammatory changes, such as long-term morning stiffness, pain, redness, fever, deformation and dysfunction, which can lead to serious joint deformity and even disability.

About 35 million people in the world suffer from RA, and the number of patients with RA in China is as high as 4 million. Although some scholars have studied that a large amount of tripterygium wilfordii will lead to toxic and side effects, the etiology and pathogenesis of RA are still under study, and there is no clear conclusion [1]. Therefore, the main goal of RA treatment is usually to relieve pain symptoms, control joint deformities and improve dysfunction. Tripterygium wilfordii, also known as triptolide, comes from the roots, stems, leaves and flowers of Tripterygium wilfordii, which has the functions of clearing away heat and toxic materials, promoting blood circulation to remove blood stasis, relieving swelling and pain, etc [2, 3].

It has been widely used in traditional Chinese medicine to treat inflammatory related diseases, such as rheumatoid arthritis and so on. Treatment: With the deepening of modern pharmacological research, Tripterygium wilfordii has made remarkable achievements in the treatment of RA. This study will discuss the clinical treatment of Tripterygium wilfordii in the treatment of rheumatoid arthritis [4].

Clinical Treatment of Tripterygium Wilfordii

- The effective components in Tripterygium wilfordii can inhibit the chemotaxis and adhesion of inflammatory cells, and it has certain anti-inflammatory and immunosuppressive effects. Because of its anti-inflammatory effect similar to that of non-steroidal anti-inflammatory drugs, it can inhibit lymphocyte mononuclear cells, thus inhibiting cellular immunity and humoral immunity, so it can be used as an adjuvant treatment for rheumatic diseases, thereby reducing the occurrence of joint inflammation [5]. The data show that tripterine in tripterygium wilfordii can effectively reduce the number of neutrophils and macrophages in joint effusion of patients with rheumatoid arthritis, thus alleviating the emergence of inflammation [6].

- Tripterygium wilfordii has the effect of regulating immune function, which can regulate human immune system, increase body immunity and inhibit the production of drug-resistant antibodies in human body. At ordinary times, it can be used to treat many common diseases such as human im-

mune dysfunction and low immunity, and can inhibit excessive immune response and reduce autoimmune damage. Studies have shown that tripterygium wilfordii can reduce the serum levels of autoantibodies such as rheumatoid factor (RF) and anti-cyclic citrullinated peptide antibody (ACPA) in patients with RA, regulate the balance of Th1/Th2, and alleviate immune inflammation [7].

- Tripterygium wilfordii has significant anti-inflammatory and analgesic effects, which can eliminate various inflammations in human body, dispel wind and remove dampness. After being taken directly at ordinary times, Tripterygium wilfordii can treat human arthritis, reduce the swelling and pain caused by arthritis, and relieve the pain of arthritis patients. It can also relieve joint swelling and pain while reducing the level of inflammatory mediators. It has been found that tripterine and triptolide in Tripterygium wilfordii can inhibit the production of inflammatory mediators such as prostaglandin E2(PGE2) and tumor necrosis factor α(TNF-α) and relieve joint pain.
- Tripterygium wilfordii has the function of protecting local joint tissue from deformity and deterioration, and can effectively inhibit the destruction of local articular cartilage and bone damage. Pharmacological components in tripterygium wilfordii can inhibit the apoptosis of articular cartilage cells in proximal joints and promote the cell proliferation of articular cartilage, thus protecting the function of local articular cartilage. At the same time, tripterygium wilfordii can also inhibit the activity of osteoclasts, reduce bone absorption and effectively prevent bone loss.

Guangpu Clinical Treatment

Non-Steroidal Anti-Inflammatory Drugs (NSAID)

Including all kinds of commonly used non-steroidal anti-inflammatory drugs. At present, diclofenac, ibuprofen, naproxen and sulindac are commonly used in clinic, each of which has its own characteristics and advantages and disadvantages. Generally speaking, gastric ulcer and nephropathy are the most common side effects.

Remission Drugs (DMARD)

A kind of drugs that can improve the condition and thus alleviate the disease, but it takes a long time for this kind of drugs to start acting, so it is also called slow-acting drugs. The combination of these drugs and NSAID drugs can control the further development of the disease as soon as possible, and can achieve the effect of relieving the disease to the greatest extent.

Methotrexate, MTX)

It is a folic acid inhibitor, which was used to treat acute leukemia in early stage. It was approved by the US Food and Drug Administration (FDA) in 1988, and was officially used for the clinical treatment of rheumatoid arthritis for the first time, but its therapeutic dose was far lower than that used to treat leukemia. For patients with RA, use 7.5-15mg per week, that is, three to six tablets. The data show that the treatment effect is considerable, and the treatment effect can be shown in 3-6 weeks after treatment. This kind of drugs can be used continuously for 3-5 years. Common side effects: diarrhea, stomatitis, nausea, vomiting, leukopenia, thrombocytopenia, liver dysfunction, headache, liver fibrosis, etc.

Sulfasalazine

The metabolites of this kind of drugs have anti-inflammatory and immunosuppressive effects, and can relieve symptoms of RA patients. Clinical studies show that the therapeutic effect can appear within one to two months after using the drugs, and the patients have good tolerance to the drugs after taking them for a long time. Side effects include nausea, low white blood cells, rash and headache. This medicine contains sulfanilamide. If you have a history of allergy, avoid taking it.

Surgical Treatment

Synovectomy

It is usually used for autoimmune diseases such as RA. Laboratory examination, before the X-ray shows the joint destruction, surgical resection of the diseased synovial tissue can alleviate the progress of the disease to some extent and prevent the local joint from being further destroyed. This helps to protect the function of the damaged joint.

Tendon Transposition, Extension, Release

Generally used to treat joint contracture and tendon rupture. In the late stage of local joint disease, inflammation has basically stopped, but contracture of damaged joints still exists and the range of motion is still limited. In this case, the range of motion of the injured joint can be effectively improved by tendon lengthening and loosening surgery.

Arthrodesis

It is used to treat joint stiffness and non-functional position in the late stage of disease development. In order to increase the stability of damaged joints and reduce joint loss, the diseased joints are fused to the available functional positions.

Artificial Joint Replacement

Also known as joint replacement, it is mainly used to treat patients with advanced stage, severely damaged joints and serious dysfunction, which affects their normal life. By replacing part or all of the diseased joints, the effect of relieving pain and restoring joint function can be achieved.

Discussion

RA is a chronic systemic immune system disease with joint disease as the main factor, which belongs to the category of arthralgia syndrome in traditional Chinese medicine, and belongs to "Li Jie" and "Bi Bi". In the early stage of RA, the evil of wind, cold, dampness and heat invaded the human body, and the theory of Su Wen and Acupuncture said, "Righteousness exists, and evil cannot be done." "Su Wen Comment on Fever": "When evil is combined, its qi will be deficient". It can be seen that qi deficiency is a prerequisite for arthralgia syndrome. "Su Wen Bi Lun" article: "Wind, cold and dampness are mixed, and they are combined into buy". Synopsis of the Synopsis of the Golden Chamber, Stroke and Syndromes, called arthralgia syndrome as Syndromes, and pointed out: "When sweat enterand exits the water, heat is damp and depressed",

which added heat evil to the cold and dampness evil in Neijing. In recent years, tripterygium wilfordii has made substantial progress in the clinical application effect of treating RA. Relevant data of tripterygium wilfordii show that its preparation can improve joint function and delay the progress of the disease. Al-

though tripterygium wilfordii has a good therapeutic effect, the safety problem still needs attention. In the application process of tripterygium wilfordii, it should be avoided to be used too much in women of childbearing age, so as not to affect reproductive function. For connective tissue disease in active stage, it is suggested to combine with other immunosuppressants [8-10].

In the process of medication, it is necessary to regularly monitor blood and urine routine, as well as liver and kidney function and other indicators, and dawn will definitely cause irresistible damage to liver and kidney. Tripterygium wilfordii is a powerful anti-rheumatic drug with the functions of expelling wind and activating collaterals, breaking blood stasis and relieving pain in Fujian Pharmacology. Tripterygium wilfordii has hormone-like effect, anti-inflammatory and immunosuppressive effects, and it has a good curative effect on RA. Its anti-rheumatic effect is inferior to steroid drugs and superior to other anti-rheumatic Chinese and western drugs. It can partially replace the treatment of steroid drugs, reduce its dependence and dosage, and there is no rebound phenomenon after drug withdrawal.

At the same time, tripterygium wilfordii has a certain inhibitory effect on the hematopoietic system of bone marrow, which is characterized by the decrease of white blood cells, platelets or hemoglobin, and occasional aplastic anemia, most of which is reversible, and can be recovered after stopping drug or symptomatic treatment. To sum up, tripterygium wilfordii has a good analgesic effect and lasting effect, and the cost is low, and the incidence of disease-prone diseases is low, which can achieve the therapeutic purpose at the maximum cost performance, which is a good progress. Finally, tripterygium wilfordii may also have a certain inhibitory activity on cancer cells.

Because the lipid component in tripterygium wilfordii has a therapeutic effect on leukemia, it is doubtful whether tripterygium wilfordii also has an inhibitory effect on breast cancer and gastric cancer cells, and there is still a lack of data support from clinical practice.

References

1. Shams, S., Martinez, J. M., Dawson, J. R., Flores, J., Gabriel, M., Garcia, G., ... & Ashouri, J. F. (2021). The therapeutic landscape of rheumatoid arthritis: current state and future directions. Frontiers in pharmacology, 12, 680043.
2. Guo, Q., Wang, Y., Xu, D., Nossent, J., Pavlos, N. J., & Xu, J. (2018). Rheumatoid arthritis: pathological mechanisms and modern pharmacologic therapies. Bone research, 6(1), 15.
3. [Xie, J., Li, Y., Wang, N., Xin, L., Fang, Y., & Liu, J. (2020). Feature selection and syndrome classification for rheumatoid arthritis patients with Traditional Chinese Medicine treatment. European Journal of Integrative Medicine, 34, 101059.
4. Li, J., & Hao, J. (2019). Treatment of neurodegenerative diseases with bioactive components of Tripterygium wilfordii. The American Journal of Chinese Medicine, 47, 769-785. https://doi.org/10.1142/S0192415X19500560
5. Brune, K., & Patrignani, P. (2015). New insights into the use of currently available non-steroidal anti-inflammatory drugs. Journal of Pain Research, 20, 105-118. https://doi.org/10.2147/JPR.S60107
6. Huang, P., Li, Y., & Ouyang, S. (2012). Analysis of the therapeutic effect of total knee arthroplasty in the treatment of advanced rheumatoid arthritis. Practical Medicine in China, 24, 1-6.
7. Bai, X. (2020). Research progress of Tripterygium wilfordii in treating rheumatoid arthritis. Chinese Herbal Medicine, 51, 265-275.
8. Tang, S., Zhao, Y., & Zhao, L. (2010). Efficacy and safety evaluation of Tripterygium wilfordii preparations in treating rheumatoid arthritis. Shandong Medical Journal, 50, 44-46.
9. Li, X. Y. (2021). Clinical effect of Tripterygium wilfordii polyglycosides tablets on senile rheumatoid arthritis. Inner Mongolia Journal of Traditional Chinese Medicine, 40, 23-24.
10. Huang, Q. H. (2020). Current situation of Tripterygium wilfordii in the treatment of rheumatoid arthritis. Chinese Folk Therapy, 28, 115-117.