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Research Progress on Integrated Traditional Chinese and Western Medicine Treatment of Rotator Cuff Injuries

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Abstract: ***Rotator cuff injury is a common clinical injury disease, which is mainly caused by trauma or prolonged shoulder joint multiple exercise, mainly manifested as limited shoulder joint activity, pain (pain arc), shoulder joint swelling, etc. With the progress of social aging, the incidence of rotator cuff injury has become significantly higher. Needle knife release in conservative treatment can relieve patients' pain, improve shoulder joint activity, degree, and thus improve patients' quality of life.***

Keywords: Rotator cuff injury, Combined traditional Chinese and western medicine treatment, Ultrasound guidance**.**

1. Introduction

Rotator Cuff Injury (RCI) is one of the "paralysis" diseases in Chinese medicine, and it is commonly seen in acute periarthritic tears in young people, and the number of patients with RCI is gradually increasing over the age of 60 years old, and the main symptoms of patients with RCI are shoulder pain and impaired mobility. The main symptoms of RCI patients are shoulder pain and impaired mobility. In recent years, the treatment of RCI is mainly divided into two types: conservative treatment and surgical treatment [1]. Severe RCI is often decided on the basis of the patient's clinical manifestations and examination. Mild or moderate patients are usually treated with conservative treatment, and this article is intended to discuss the research progress of conservative treatment for patients with mild and moderate RCI.

2. Physiopathologic Study of RCI

2.1 Pathogenesis: Degeneration, Trauma Theory, Impingement Syndrome

Degeneration theory: the supraspinatus vasculature degenerates with age, often accompanied by necrotic rupture of the muscle and fibrous tissue, and rupture can occur with minor trauma, which is called the "degeneration trauma theory" [2]. Trauma theory [3]: Violent traumatic injury to the shoulder joint, often accompanied by a large number of hematomas of the shoulder joint, acute injury to the shoulder joint, joint cavity damage, shoulder joint muscle tear, accompanied by severe pain. Impingement syndrome [4]: about 95% of RCI is caused by subacromial impingement. When the shoulder joint is doing forward flexion and abduction, the anterior border of the acromion and the rostrocapillary ligament impinge on the greater tuberosity of the humerus, which triggers subacromial bursa inflammation and rotator cuff tearing.

Influencing factors of RCI: Currently, it has been suggested that degeneration and injury are believed to play a major role in RCI.RCI is characterized by severe inflammation, atrophy, fibrosis, and fatty infiltration of the rotator cuff muscle groups, resulting in irreversible and persistent degeneration of rotator cuff-associated muscles. In a study conducted by Agha O, et al [5], it was suggested that fibro-adipogenic progenitors (FAPs), which are the most common type of fat cells in the rotator cuff, may be the most common cause of rotator cuff injury. progenitors (FAPs) may play a key role in the pathogenesis of RCI. However, their specific mechanisms have not been fully elucidated yet, so more basic studies are needed in the future to further reveal the molecular biology and pathological mechanisms of rotator cuff injury.

2.2 Clinical Typing of RCI

Wolfgang's typing, DeOrio and Cofield's typing, Neer's typing, Ellman's typing, Bateman's typing, Patte's typing, Ellman and Gartsman's typing, Gerber's typing, Habermeyer's typing, Snyder's typing, Fox and Romeo's typing, and so on. Gerber, Habermeyer, Snyder, Fox and Romeo, and so on.

The Neer and Ellman types are the most widely used RCI types in clinical practice because of the combination of pathologic features and quantitative indexes [6], while the DeOrio and Cofield types and the Patte type are commonly used for intraoperative evaluation and surgical planning [7]. For complex cases, a combination of imaging (e.g., MRI, ultrasound, etc.) and intraoperative exploration is required.

3. Diagnosis of Rotator Cuff Injury

3.1 Nuclear Magnetic Diagnosis

Magnetic resonance imaging (MRI) observation of soft tissue is very clear, can clearly show the degree of damage to the shoulder joint, MRI test can accurately determine the degree of RCI and surrounding tissue damage, at this stage, the use of MRI in the diagnosis of rotator cuff injuries to be very popular.

As the gold standard of RCI [8], MRI has great significance for diagnosis, grading and treatment, but it is expensive for patients with mild injuries, and there are problems related to the imperfect examination facilities in primary hospitals.

3.2 Ultrasonography

Musculoskeletal ultrasound can clearly show the structure of muscles, tendons, ligaments, peripheral nerves and other parts of the structure and their alignment, to determine the scope and severity of the lesion, and easy to operate, low cost of examination, suitable for the promotion of the application of primary care institutions. For RCI, it can improve the accuracy and effectively avoid the false-negative of tendon tear, which is of clinical significance [9].

Advantages of ultrasound diagnosis: it is of great clinical significance for the correctness of diagnosis, effectiveness and standardization of treatment; Disadvantages: it is demanding for ultrasound physicians, and a large amount of data is needed to organize diagnosis and treatment plans and to analyze them; the amount of data of the existing clinical research is too small to standardize the treatment of needle knife treatment, and it needs to be further researched.

3.3 Combined Chinese and Western Medicine Treatment

For serious injuries in RCI, affecting activities, work, life, etc. requiring surgical treatment; part of the rotator cuff partial tear, pain and activity limitation and other symptoms are not obvious, and can not tolerate surgery, the treatment should be preferred to conservative treatment.

3.4 Conservative Treatment

(1) Drug therapy: drug therapy mainly includes oral Chinese medicine, western medicine, external plasters, joint cavity drug injection and other treatment methods. Chinese medicine treatment of the disease is often based on oral Chinese medicine, supplemented by external application of traditional Chinese medicine, evidence-based treatment. Western medicine often uses non-steroidal drugs (NSAIDs), antispasmodic and analgesic drugs. Existing studies have shown that intra-articular injection of corticosteroid drugs and platelet-rich plasma (PRP) and sodium vitrate intra-articular injection into the shoulder joint cavity have good therapeutic effects on the treatment of RCI, but injection of plasma is better than injection of corticosteroid drugs in relieving pain and restoring the function of the shoulder joint [10].

(2) Acupuncture therapy: Acupuncture in Chinese medicine is a method of identifying acupuncture points, needling specific points and applying manipulation to achieve the purpose of energizing the meridians and activating the collaterals, and treating both internal and external problems. Clinical treatment of RCI should be based on the site of injury and the patient's clinical symptoms, identify the meridians, and identify the acupoints. Yang Xiaoyong [11] used shoulder three-needle method to treat shoulder joint pain and activity dysfunction caused by RCI with obvious efficacy. Huang Meiling et al. used warm acupuncture and moxibustion combined with conventional rehabilitation to treat postoperative RCI [12], which was able to rapidly reduce the pain of patients and promote functional recovery. Shi Yumin [13] and others used electro-acupuncture combined with joint loosening to treat RCI with remarkable efficacy, which can significantly reduce the patient's pain and improve the function and mobility of the shoulder joint.

(3) Tui na therapy: TCM tui na therapy can relieve pain, regulate tendons and activate collaterals, and the use of tui na techniques such as pushing, holding, pressing, moving, shaking, etc. in treating rotator cuff injuries can help to reduce the degree of pain in the affected limbs, improve the mobility of the shoulder joint, and promote the recovery of the disease. Huang Kechun [14] and other researchers found that the use of massage techniques combined with rehabilitation treatment of rotator cuff injuries has a good clinical effect, and can effectively improve the function of the shoulder joint.

(4) Acupuncture and Knife Therapy: Acupuncture and Knife Therapy is a kind of closed tendon release, as a kind of traditional Chinese medicine characteristic therapy, it mainly loosens the adhesive tissue, reduces the inter-fascial tension, relieves the muscle spasm, reduces the pain of the affected limb, and then effectively improves the quality of life of the patients. Studies have shown that needle knife therapy has the effect of promoting local blood circulation and lymphatic circulation, accelerating the absorption of local inflammatory factors. Wang Jiao Yun et al [15] believe that needle knife release can be precisely applied to the soft tissue surrounding the lesion, which can effectively loosen the adhesive tissue, quickly relieve the compression and improve the function of the shoulder joint.

4. Surgery

Surgery for RCI mainly includes open repair and arthroscopic surgery. Arthroscopic surgery is often divided into arthroscopic small incision rotator cuff repair and total arthroscopic rotator cuff repair.

4.1 Open Rotator Cuff Repair

Open rotator cuff repair mainly adopts a transverse shoulder incision via the acromion and an inverted U-shaped incision in front of the deltoid muscle, in which the skin, superficial fascia and deep fascia are incised to reveal the damaged rotator cuff, and then the damaged part is repaired and sutured after a careful cleaning and exploration. Open repair has the disadvantages of high bleeding, long operation time, postoperative pain, and increased risk of incisional infection, so it is only suitable for the treatment of huge rotator cuff tear.

4.2 Arthroscopic Surgery

Arthroscopic small-incision rotator cuff repair has been continuously improved, and it has the advantages of small incision trauma, short operation time, low treatment cost, and favorable postoperative functional exercise, etc., and it has become a commonly used procedure for rotator cuff injury. Huang Jun et al. concluded that the use of arthroscopic-assisted small incision rotator cuff repair for rotator cuff injuries has the advantages of small trauma, simple operation, and is conducive to early functional exercise [16]. Compared with arthroscopic small-incision

rotator cuff repair, total arthroscopic rotator cuff repair has the advantages of better visual field, larger operation space, less bleeding, less tissue trauma, and less pain in the shoulder joint. Zhang Yulong et al. observed the pain level and complication rate of rotator cuff injury within 72 hours after surgery, and concluded that total arthroscopic rotator cuff repair can significantly reduce the pain level and complication rate of rotator cuff injury within 72 hours after surgery.

5. Comprehensive Treatment

The combination of Chinese and Western medicine is a good choice for not only postoperative patients but also conservative patients. The main purpose of treatment is to reduce pain and restore shoulder mobility. Hu Menglu [17] and others used warm acupuncture combined with the external application of tendon and bone pain relief cream, which can significantly reduce shoulder pain and improve shoulder joint mobility. Yang et al [18] used Shujin and Vitalizing Tang combined with warm acupuncture to treat RCI, and found that shoulder joint function and serum inflammatory factor levels were significantly reduced. Zhou K et al [19] found that patients' feedback was better after treatment with shoulder three-needle acupuncture combined with manipulation, which improved their joint movement. Zhuang et al [20] used both internal and external treatments to treat RCI, and the combination of external electroacupuncture and internal platelet-rich plasma injection could improve the function and muscle strength of rotator cuff injury patients' shoulder joints. Hou Wenyuan et al [21] analyzed the use of tonic Yang and five soup in the treatment of postoperative shoulder joints, which could promote the recovery of rotator cuff function of the patients.

6. Conclusion and Prospect

RCI is a common clinical disease, and the degree and location of injury, individual differences, and the medical environment of patients may affect the diagnosis and treatment process. There are various treatment options. Conservative treatment mainly includes traditional Chinese medicine, massage, acupuncture, needle knife, etc., while Western medicine mainly includes drugs, joint injection, electrical stimulation, etc. If the injury is severe, surgery is possible. If the injury is serious, surgical treatment is possible, mainly including open rotator cuff repair and arthroscopic surgery, so the combination of traditional Chinese medicine and western medicine is more conducive to give the patient a personalized and feasible treatment plan. Although there are many treatment options for RCI, there are still a lot of treatment options that need to be further proved and popularized, and it is hoped that the treatment options for RCI can be formed into standards and norms.

Fund Project

Correlation Study of Regional Cerebral Blood Flow Changes (rCBF) in Patients with Cervical Vertigo and the Effects of Guanzhong Li's Manual Therapy on It.

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