Clinical Research

Therapeutic effect of electro-acupuncture in the treatment of Achilles tendonitis

电针治疗跟腱炎疗效观察

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ABSTRACT

Objective To investigate the clinical efficacy of electroacupuncture for the treatment of Achilles tendonitis. **Methods** Sixty patients with Achilles tendonitis at the age of 18-55 years old were randomly divided into electroacupuncture group (group A) and low frequency impulse group (group B) according to the random number table with 30 patients in each group. Chéngshān (承山 BL 57), *Ashì* point, Tàixī (太溪 KI 3) and Kūnlún (昆仑 BL 60) were selected as main acupoints, local point selection was adopted as main method and distal point selection as supplement. Patients in group A were treated with electroacupuncture and in group B were treated with low frequency impulse therapeutic apparatus. Patients in both groups were treated for 12 times, 3 times per week in the 1st and 2nd weeks, twice a week in the 3rd and 4th weeks, and once a week in the 5th and 6th weeks, with a total of 6 weeks. The heel pain VAS scores, tenderness and efficacy of dysfunction in two groups were comparatively analyzed. **Results** Pain: there was significant difference in pain scores in group A before and after treatment (1.67±0.71 vs 3.03±1.81, $P<0.01$), and the difference in pain scores was not significant in group B before and after treatment (2.13±1.17 vs 2.87±1.57, $P>0.05$). Tenderness: In group A, 13 patients had mild tenderness, 15 had moderate tenderness and 2 had severe tenderness before treatment. After treatment, 26 patients had mild tenderness, 4 had moderate tenderness and no patients had severe tenderness. In group B, 15 patients had mild tenderness, 14 had moderate tenderness and 1 had severe tenderness before treatment. After treatment, 24 patients had mild tenderness, 5 had moderate tenderness and one patient had severe tenderness. Dysfunction: in group A, 12 patients had mild dysfunction, 16 had moderate dysfunction and 2 had severe dysfunction before treatment. After treatment, 24 patients had mild dysfunction, 6 had moderate dysfunction and no patients had severe dysfunction. In group B, 13 patients had mild dysfunction, 15 had moderate dysfunction and 2 had severe dysfunction before treatment. After treatment, 14 patients had mild dysfunction, 13 had moderate dysfunction and one patient had severe dysfunction. There is significant difference in total effective rate between two groups [100%(30/30) vs 86.67(26/30), $P<0.05$]. **Conclusion** Electroacupuncture has better therapeutic effect than that low frequency impulse therapy in the treatment of Achilles tendonitis, which can eliminate or improve symptoms, as well as heighten the quality of life for patients.

KEY WORDS: electroacupuncture; low frequency impulse therapy; Achilles tendonitis

Achilles tendonitis, also known as peritenonitis of Achilles tendon, Achilles tendon injury and so on, refers to traumatic inflammation induced by the injury and strain in fatty tissues around the Achilles tendon, aponeurosis and retrocalcaneal bursa, the changes such as hyperaemia, exudation, proliferation, adhesion and degeneration in Achilles tendon and the surrounding of tendon induced by running, jumping, bumping and other excessive forces or walking strain, and even the damage in retrocalcaneal bursa, which commonly occurs in people who love to run and jump [1]. The methods for the treatment of Achilles tendonitis in current clinically include surgery, drug therapy such as corticosteroids, rehabilitation therapy etc. However, most of these methods have disadvantages of indefinite therapeutic effect, incomplete treatment, easy to relapse or cause complications. Therefore, in this study, electroacupuncture therapy was employed for exploring new ways to improve efficacy. From March 2009 to October 2011, the authors applied electroacupuncture for the treatment of Achilles tendonitis, and the comparison between electroacupuncture therapy and impulse stimulation therapy is reported below.

CLINICAL DATA

General data

Sixty patients with Achilles tendonitis admitted to our Lily's Acupuncture and Chinese Medicine Clinic in Canada from March 2009 to October 2011 were enrolled, including 30 males and 30 females, at the age of 18–65 years old with the mean age 53 years. The course of disease ranged from one week to 4 years with the mean duration of 5.5 months. All patients were single-blindly and randomly divided into electroacupuncture group (group A) and low frequency impulse group (group B) according to the random number table. In group A, there were 16 males and 14 females, of which, 15 patients aged 18–50 years, 6 patients aged 51–60 years and 9 patients aged 61–65 years. In group B, there were 14 males and 16 females, of which, 14 patients aged 18–50 years, 7 patients aged 51–60 years and 9 patients aged 61–65 years. The clinical data of patients such as gender, age, course of disease in the two groups were analyzed, and the differences were not statistically significant (all $P>0.05$). This study was approved and supervised by the local (Ontario, Canada) Medical Ethics Committee.

Diagnostic criteria

The diagnostic criteria on Achilles tendonitis were developed based on the *Criteria of Diagnosis and Therapeutic Effect of Diseases and Syndromes in Traditional Chinese Medicine* [2] issued by State Administration of Traditional Chinese Medicine in 1994 and the relevant diagnostic criteria in *Sports Medicine* [3]: ① Patients suffering from Achilles tendon pain when running and jumping and severe patients will feel pain when walking; ② the surroundings of Achilles tendon becoming thicker and fusiform; ③ having plantar flexion resistance pain; ④ having tenderness in the surroundings of Achilles tendon; ⑤ having active dorsiflexion or active plantar flexion pain; ⑥ having toe pain when thrusting against the ground.

Inclusive criteria

① Patients who were aged from 18 to 65 years old; ② those who complied with the diagnostic criteria, were suffering from Achilles tendonitis and willing to receive the treatment; ③ patients who have signed the Informed Consent.

Exclusive criteria

① Patients suffering from other foot diseases, such as high pressure of calcaneus, gout, fractures, tumors and etc.; ② patients suffering from concomitant cardiovascular, liver, kidney, hematopoietic system, the endocrine system and other serious primary diseases and mental illness; ③ patients with iatrogenic Achilles tendonitis due to improper treatment; ④ patients with partial or complete Achilles tendon rupture.

METHODS

Electroacupuncture group (group A)

Acupoints selection: acupoint selection was mainly based on local point selection combined with selecting acupoints along meridian as supplement. Chéngshān (承山 BL 57), *Ashi* point (阿是穴, the worst pain point), Tàixī (太溪 KI 3) and Kūnlún (昆仑 BL 60) were selected as main acupoints, and Zúsānlǐ (足三里 ST 36), Sānyīnjiāo (三阴交 SP 6), Chéngjīn (承筋 BL 56), Zhàohǎi (照海 KI 6), Shuǐquán (水泉KI 5), Qiūxū (丘墟 GB 40) and Shēnmài (申脉 BL 62) were selected as matching acupoints. Two matching acupoints were selected alternately at each time of electroacupuncture.

Manipulation: the patient was asked in prone position with legs straight out, ankle dorsiflexion on a small pillow and local skin exposed. After routine disinfection with 75% alcohol cotton balls on the skin, *Tianxie* disposable filiform needle (0.25 mm×40 mm) was applied to perpendicularly acupuncture at BL 57 in depth of 25 mm. Then, KI 3, BL 60 and *A*shi point were acupunctured in depth of 15 mm with