

Clinical Research

Observation on clinical efficacy of tension-balance acupuncture therapy in treating knee osteoarthritis

张力平衡针刺法治疗膝骨性关节炎临床疗效观察

HUANG Jie (黄洁), ZHANG Wei (章薇), LOU Bi-dan (娄必丹), LIU Zhi (刘智),
YE Yong (叶勇), HUANG Ai (黄艾), LI Xia (李霞), LI Li (李里)✉

The First Hospital of Hunan University of CM, Changsha, 410007, China (湖南中医药大学第一附属医院, 长沙 410007, 中国)

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First author: HUANG Jie (1969-), female, associate chief physician.

Research field: clinical studies of acupuncture in myocardial ischemic lesions and lesions of knees.

✉ Corresponding author: LI Li (1981-), male, master.

Research filed: clinical studies of acupuncture in gonarthrosis, cervical spondylosis and lumbar spondylosis.

E-mail: 43820650@qq.com

ABSTRACT

Objective By comparison of the clinical efficacy of treating knee osteoarthritis with tension-balance acupuncture therapy and conventional acupuncture therapy, the effectiveness of treatment of knee osteoarthritis with tension-balance acupuncture therapy was evaluated. **Methods** Sixty-three patients with knee osteoarthritis in conformity with the diagnostic criteria were randomly divided into the tension-balance-acupuncture group (32 cases, balance group for short) and the conventional acupuncture group (31 cases, conventional group for short) according to random number table. In the balance group, patients with the pain in the anterior flexor group were needled at Biguān (髌关 ST 31), Fēngshì (风市 GB 31), Hèdǐng (鹤顶 EX-LE 2), Dúbí (犊鼻 ST 35), Yánglíngquán (阳陵泉 GB 34), Xuèhǎi (血海 SP 10) and Liángqiū (梁丘 ST 34). Afterwards the patients were repositioned in prone position. They were given the treatment by needling at Huántiào (环跳 GB 30), Chéngfú (承扶 BL 36), Wěizhōng (委中 BL 40), Wěiyang (委阳 BL 39), Yīnlíngquán (阴陵泉 SP 9), Qūquán (曲泉 LV 8) and Chéngshān (承山 BL 57). Patients with the pain in the posterior extensor group were needled at ST 31, GB 31, EX-LE2, ST 35, GB 34, SP 10 and ST 34. Then the patients were repositioned in prone position. They were given the treatment by needling at GB 30, BL 36, BL 40, BL 39, SP 9, LV 8 and BL 57. They were treated once a day with five days as a course of treatment and two days as an interval. After three courses, Lequesne indices before and after the treatment and clinical efficacy of the treatment were observed. In the conventional group, patients were treated in a sitting position by needling at ST 35, Xīyǎn (膝眼 EX-LE 5), Zúsānlǐ (足三里 ST 36), GB 34, Xuánzhōng (悬钟 GB 39), SP 9, EX-LE2, ST 34, Shènsù (肾俞 BL 23) and Píshù (脾俞 BL 20). They were treated once a day with five days as a course of treatment and two days as an interval. After three courses, the clinical efficacy of the treatment was observed. **Results** After three courses, improved Lequesne indices score was (5.55 ± 1.08) in the balance group while improved Lequesne indices score was (2.14 ± 0.57) in the conventional group, indicating that improved Lequesne indices score in the balance group was superior to that of the conventional group with the significant difference ($P < 0.05$); efficacy rate in the balance group was 84.37% while that of the conventional group was 58.06%, and efficacy rate in the balance group was superior to that of the conventional group ($P < 0.01$). **Conclusion** Clinical efficacy of treatment of knee osteoarthritis in the balance group was superior to that of the conventional group, worthy of clinical promotion.

KEY WORDS: tension balance; acupuncture; knee osteoarthritis; Lequesne indices; randomized controlled trial

Knee osteoarthritis (KOA) is defined as chronic osteoarthrosis characterized by denaturation or damage of articular cartilage and marginal osteophyte formation of joint caused by aging, inflammation, infection, trauma and others, which can lead to knee deformity, affecting the patient's work and life. KOA is a common clinical disease, and acupuncture therapy has a definite effect on the treatment of KOA in a simple and less risky way. In recent years, we treated patients with knee osteoarthritis with tension-balance acupuncture therapy by starting with recovering mechanical equilibrium at the knee flexion-extension side. Here's a report of relevant information.

CLINICAL DATA

General data

Sixty-three patients with knee osteoarthritis were selected from inpatient and outpatient department of Acupuncture Department of the First Hospital of Hunan University of Chinese Medicine from February 2011 to February 2013. They were randomly divided into the tension-balance acupuncture group (32 cases, balance group) and the conventional acupuncture group (31 cases, conventional group) by adopting random number table method. In the balance group, there were 32 patients, 15 males and 17 females, aged 40 to 65 with an average of (60.22 ± 3.21) years old, and course of disease for 2 months to 5 years with an average of 1.14 ± 1.22 years; 19 cases were with the pain in the anterior flexor group (quadriceps femoris, sartorius muscles, tensor fascia lata and iliotibial band, gracilis), and 13 cases with the pain in the posterior extensor group (semitendinosus, semimembranosus, popliteal muscle). In the conventional group, there were 31 patients, 17 males and 14 females, aged 41 to 64 with an average of (55.65 ± 3.12) years old, and course of disease for 2 months to 5 years with an average of 1.12 ± 0.22 years; 18 cases were with the pain in the anterior flexor group and 13 cases with the pain in the posterior extensor group. The trial was approved by the Ethic Committee.

It is shown in Table 1 that age, gender, course of disease and location of pain were comparable in the two groups, and the difference was not significant ($P > 0.05$).

Diagnostic criteria

Diagnostic criteria abided by *Guidelines of Diagnosis and Treatment of Osteoarthritis* issued by Chinese Orthopaedic Association (2007 version)^[1]:
① repeated knee pain over the past month; ② X-ray (standing or weight-bearing) shows joint space narrowing, subchondral sclerosis and (or) cystic degeneration, marginal osteophyte formation of joint; ③ synovial fluid (at least 2 times) is clear and viscous, WBC $< 2000/\text{mL}$; ④ elderly patients ($I > 40$ years old); ⑤ morning stiffness ≤ 30 minutes; ⑥ bone crepitus or sense in motion. Any symptom of ①, ② or ①, ③, ⑤, ⑥ or ①, ④, ⑤, ⑥ can be diagnosed as knee osteoarthritis.

Inclusion criteria

① In conformity with the above-mentioned diagnostic criteria; ② voluntary acceptance of two weeks of treatment and examination; ③ aged 50–70 years old, both male and female; ④ neither analgesia medication nor hormone were taken within 1 month before the treatment and during the treatment; ⑤ voluntary join in the test with the signature on the Informed Consent Form.

Exclusion criteria

① in inconformity with diagnostic criteria; ② unable to adhere to the treatment or be treated with additional treatments, which hinders data collection and efficacy evaluation; ③ concomitant with severe cardiovascular disease, and diseases of liver, kidney and hematopoietic system, or suffering from mental illness; ④ concomitant with severe primary diseases of angiopathy, liver, kidney and hematopoietic system, pregnancy and maternity, or suffering from mental illness; ⑤ failing to be treated in accordance with the experimental scheme upon admission.

METHODS

Tension-balance acupuncture group

Shunhe disposable acupuncture needles of stainless steel with copper handles ($0.25 \text{ mm} \times 50 \text{ mm}$), manufactured by Suzhou Medical Supplies Factory, were applied. Patients with the pain in the anterior flexor group were treated lying on back. The needles were rapidly applied to Bìguān (髌关 ST

Table 1 Comparison of age, course, gender and location of pain in the two groups of KOA patients

Groups	Patients	Age (year, $\bar{x} \pm s$)	Course (year, $\bar{x} \pm s$)	Gender (case)		Location of pain (case)	
				Male	Female	Anterior flexor side	Posterior extensor side
Balance	32	60.22 ± 3.21	1.14 ± 1.22	15	17	19	13
Conventional	31	55.65 ± 3.12	1.12 ± 0.22	17	14	18	13

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