

### 13. Diseases of the Musculoskeletal and Connective Tissue

#### Reference

Itoh K. Value of conservative therapy for chronic pain associated with locomotor disease - effects of TENS and acupuncture for knee osteoarthritis\* -. *Mansei Totsu (The Journal of the Japanese Society for the Study of Chronic Pain)* 2005; 26: 143–8 (in Japanese with English abstract). Ichushi Web ID: 2008144239

#### 1. Objectives

To evaluate the effects of transcutaneous electrical nerve stimulation (TENS) and acupuncture on pain in elderly patients with knee osteoarthritis.

#### 2. Design

Randomized controlled trial (RCT).

#### 3. Setting

Outpatient Clinic of Department of Orthopaedic Surgery and Center of Acupuncture Science , the Meiji University of Oriental Medicine (current Meiji University of Integrative Medicine), Kyoto, Japan.

#### 4. Participants

Twenty-four elderly patients with a chief complaint of degenerative knee pain persisting for at least 6 months (6 males and 18 females).

#### 5. Intervention

Arm 1: Acupuncture group. Needles were inserted to a depth of 10 mm at tender points selected from among the SP6 (三陰交), GB34 (陽陵泉), SP10 (血海), ST34 (梁丘), ST36 (足三里), SP9 (陰陵泉) and BL40 (委中) acupuncture points, and retained for 10 minutes. Treatment was administered once weekly, a total of 5 times (n=6).

Arm 2: TENS group. TENS stimulation pads were put on the most tender point and the corresponding point on the contralateral side. Stimulation was applied for 10 minutes. Treatment was administered once weekly at the clinic and twice or more weekly at home, a total of at least 15 times (n=6).

Arm 3: Acupuncture+TENS group. As acupuncture treatment, needles were inserted to a depth of 10 mm at tender points selected from among the SP6 (三陰交), GB34 (陽陵泉), SP10 (血海), ST34 (梁丘), ST36 (足三里), SP9 (陰陵泉), and BL40 (委中) acupuncture points, and retained for 10 minutes. Acupuncture treatment was administered once weekly at the clinic, a total of 5 times. For TENS, stimulation pads were put on the most tender point and the corresponding point on the contralateral side. Stimulation was applied for 10 minutes. TENS treatment was administered 3 times or more weekly at home, a total of at least 15 times (n=6).

Arm 4: Control group. No intervention (n=6).

In all 4 arms, for patients who had received pharmacotherapy, the drug was concurrently administered with the above-mentioned treatment.

#### 6. Main outcome measures

Pain intensity measured on a visual analogue scale (VAS) 7 times overall: before the start of the treatment, 1 week after each of the 5 treatment sessions, and 1 month after the final treatment.

Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) measured 3 times overall: before the start of the treatment, and at 1 week and 1 month after the final treatment.

#### 7. Main results

VAS score decreased significantly after the treatment in Arm 3 compared with that in Arm 4 ( $P<0.01$ ). There was no significant change in WOMAC score in all arms.

#### 8. Conclusions

Acupuncture combined with TENS is effective treatment for pain in elderly patients with knee osteoarthritis.

#### 9. From acupuncture and moxibustion medicine perspective

The mechanism underlying the therapeutic effect of acupuncture may be similar to that described in previous reports, such as activation of the endogenous analgesic system and improved regional blood flow.

#### 10. Safety assessment in the article

Not mentioned.

#### 11. Abstractor's comments

This study explored various possibilities by employing TENS (which patients can easily self-apply at home) and acupuncture as interventions and by evaluating TENS and acupuncture not only separately but also combined. As the author stated in the Discussion, maintenance of quality of life may be essential for elderly people living in underpopulated areas with insufficient access to medical care. The value of this study lies in the consideration of self-care as one medical care option. In this study, however, patients' self-application of TENS at home precluded masking. Furthermore, differences in the frequency of treatment between arms may have resulted in bias. The quality of the article could be improved in several ways, such as preliminary calculation of sample size and accurate representation of resultant figures. This is a highly valuable report on an attempt to combine acupuncture with self-care to address the healthcare needs of an increasingly aging population.

#### 12. Abstractor and date

Shimoichi Y, 11 September 2011.