Electroacupuncture Plus Warm Needling Therapy For Plantar Heel Pain: A Randomised Waitlist-controlled Trial

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BACKGROUND

- Plantar heel pain (PHP) is a common foot disorder that is estimated to affect 10% of the general population over the course of a lifetime[1–3]
- It has significant negative impact on foot-specific and general health-related quality of life[4]
- Acupuncture and moxibustion have been widely used to treat PHP in clinical practice, with no consensus on which modality is most effective[5–6]

PURPOSE

- To investigate the clinical efficacy and safety of electroacupuncture plus warm needling (EAWN) therapy in PHP patients

METHODS

Design & Setting

- Prospective, parallel-group, open-label, randomised controlled trial[7–8]
- A Chinese Medicine Centre in Hong Kong
- Trial registration: ChiCTR1400014906

Participants

Inclusion criteria include:

- Age 50–80 years
- Heel pain that worsened on standing or walking after waking up in the morning
- Marked tenderness at the plantar and lateral aspects of the calcaneal tuberosity
- Pain under one or both heels; either acute or chronic pain
- Visual analogue scale (VAS) score of ≥ 50mm (0–100mm) for pain during the first few steps at the time of recruitment
- Provision of informed consent

Exclusion criteria include:

- Pain in another area that is more severe than the heel pain
- Abnormalities or previous surgery at the painful heel(s)
- Known severe disease
- Possess a cardiac pacemaker
- Pregnancy and/or lactation
- Other factors that have been deemed unsuitable for participation

Randomisation

- Block randomisation by computation with a block size of 10

Intervention

Treatment group

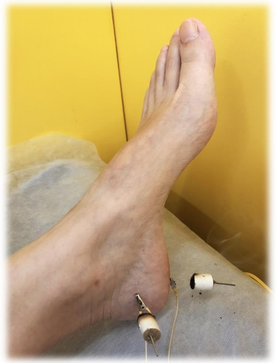
- Six 30-min sessions of standardised EAWN therapy over four consecutive weeks

Control group

- No intervention

METHODS

EAWN Therapy



Outcome Measures

- First-step pain VAS
- Foot Function Index (FFI)
- Global rating of change (GRC) scale
- Safety outcomes

Primary endpoint:

- First-step pain VAS at week 4

Assessments

- Baseline, week 2 and week 4
- Treatment group underwent additional assessments at week 8

Statistical Analysis

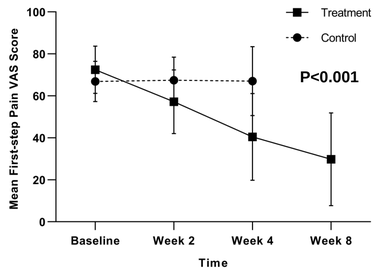
- Linear mixed-effects model to evaluate changes in mean scores (treatment vs control) over time (baseline, week 2, week 4)

RESULTS

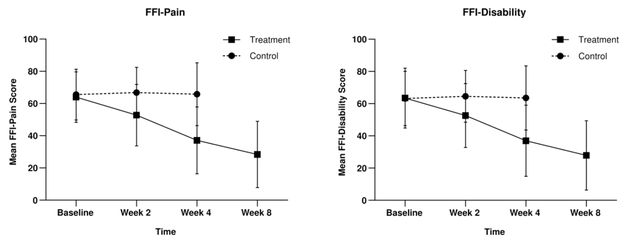
Baseline Characteristics	Treatment (n=40)	Control (n=40)
Female, n (%)	34 (85.0)	34 (85.0)
Age, years; mean (SD)	59.4 (6.31)	60.0 (6.12)
Height, cm; mean (SD)	159.6 (7.72)	157.1 (6.92)
Weight, kg; mean (SD)	60.4 (7.78)	57.7 (7.81)
BMI	23.7 (2.96)	23.4 (3.10)
Affected side		
Left, n (%)	8 (20.0)	12 (30.0)
Right, n (%)	17 (42.5)	15 (37.5)
Bilateral, n (%)	15 (37.5)	13 (32.5)
Pain duration, months; mean (SD)	5.0 (3.54)	4.9 (3.22)
Calcaneal spur on X-rays, n (%)	30 (75.0)	27 (67.5)
First-step pain VAS, mean (SD)	72.5 (11.23)	66.9 (9.57)
FFI, mean (SD)		
Pain	64.0 (15.72)	65.5 (15.77)
Disability	63.4 (18.63)	63.2 (16.87)
Activity limitation	37.0 (23.85)	34.5 (23.04)
Total	54.8 (14.65)	54.4 (14.87)

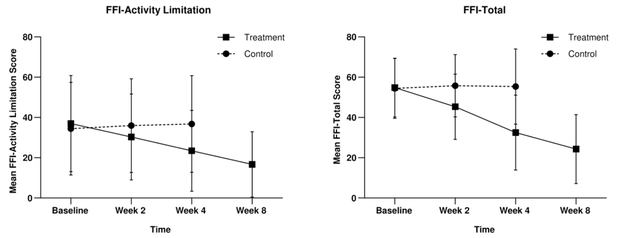
RESULTS

Mean First-step Pain VAS Score



Mean Foot Function Index Score





All P<0.001

Other Outcomes

- The improvements for first-step pain VAS and FFI scores in the treatment group continued until week 8
- GRC scale score differed significantly between groups at week 4 (P<0.001)
- GRC scale scores at week 4 indicated improvement in all the treated patients and only 22.5% of the control group patients
- No study-related adverse events detected

STRENGTHS & LIMITATIONS

Strengths

- Rigorously designed clinical trial with strict randomisation
- Use of validated assessment tools
- Protocol compliance achieved with no missing data

Limitations

- Single-centre study without blinding
- Lack of placebo-controlled group
- Long-term effects of EAWN therapy not assessed

CONCLUSION

- EAWN therapy is safe and may have particular benefits in relieving pain and improving foot function in middle-aged and older adults with PHP

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Protocol

Report