



Original article

# The effectiveness of acupuncture or TENS for phantom limb syndrome. II: A narrative review of case studies

Xiaoyang Hu<sup>a,\*</sup>, Esmé Trevelyan<sup>a</sup>, Guoyan Yang<sup>b</sup>, Myeong Soo Lee<sup>c</sup>, Ava Lorenc<sup>a</sup>,  
Jianping Liu<sup>b</sup>, Nicola Robinson<sup>a</sup>

<sup>a</sup> Faculty of Health and Social Care, London South Bank University, London, UK<sup>1</sup>

<sup>b</sup> Centre for Evidence-Based Chinese Medicine, Beijing University of Chinese Medicine, Beijing, China

<sup>c</sup> Medical Research Division, Korea Institute of Oriental Medicine, Daejeon, South Korea

## Abstract

**Introduction:** Phantom limb pain and phantom limb sensation are extremely prevalent, affecting up to 85% of amputees, but with limited positive solutions available. Previous systematic reviews of complementary therapies suggested the use of acupuncture and transcutaneous electrical nerve stimulation. However, there is a lack of randomized controlled trials and inadequate information to guide clinical practice and future definitive research. This narrative review aims to provide guidance for using acupuncture or TENS and to identify potential outcome measures and optimum treatment protocols for clinical practice and future research.

**Methods:** Case studies identified in a previous systematic review were included, with clinical characteristics extracted to provide narrative description.

**Results:** Thirty-six case studies (257 individuals) were included. Acupuncture usually involved body needling and was most frequently reported on the contralateral limb. Chinese papers tended to use body and scalp acupuncture together; studies reported in English language journals tended to use one style. Acupoints along *Yang Ming* meridians, Liv 3, and LI 4 were commonly used. Needle retention time varied but was usually 30–40 min. Most Chinese studies reported daily treatment for 10–30 sessions, English studies tended to treat less frequently (weekly) and provide a smaller number of treatments (4–7 treatments). Contralateral stimulation in the upper fifth and middle 2/5 of sensory area were frequently used to activate lower limbs and body with scalp acupuncture. TENS treatment tended to be administered at the stump, the contralateral side and in relation to dermatomal pain patterns and innervating peripheral nerves. High frequency TENS was the most frequently used treatment, usually administered more than once daily. Both acupuncture and TENS recorded positive outcomes. Visual analogue scales, numerical pain rating scales, pain rating indices and present pain intensity were common outcome measures.

**Conclusion:** Treatment protocols can be drawn from the case studies for clinical practice but information is variable. Differences in clinical practice between studies published in Chinese and English may be due to different educational background, qualifications, cultural expectations, and differences in healthcare systems and policy. Further studies are recommended to develop standard treatment protocols for further randomized controlled trials.

Crown Copyright © 2014 Published by Elsevier GmbH. All rights reserved.

**Keywords:** Phantom limb pain; Phantom limb sensation; Phantom limb syndrome; Acupuncture; Transcutaneous electric nerve stimulation; Case study; Clinical guidance

## Introduction

Phantom limb symptom, which includes phantom limb pain (PLP) and phantom limb sensation (PLS), is a prevalent condition, affecting up to 85% of amputees [1–5]. It may affect amputees from a very early stage post operation [6], continuing to have long-term chronic effects [7,8].

There are limited positive solutions available for amputees. Previous systematic reviews have explored the use of preemptive

\* Corresponding author at: 103 Borough Road, London South Bank University, SE1 0AA, UK. Tel.: +44 020 7815 8350; fax: +44 020 7815 8490.

E-mail addresses: [hux2@lsbu.ac.uk](mailto:hux2@lsbu.ac.uk) (X. Hu), [trevelye@lsbu.ac.uk](mailto:trevelye@lsbu.ac.uk) (E. Trevelyan), [yangguoyanbeijing@126.com](mailto:yangguoyanbeijing@126.com) (G. Yang), [drmslee@gmail.com](mailto:drmslee@gmail.com) (M.S. Lee), [lorenca@lsbu.ac.uk](mailto:lorenca@lsbu.ac.uk) (A. Lorenc), [jianping\\_l@hotmail.com](mailto:jianping_l@hotmail.com) (J. Liu), [nicky.robinson@lsbu.ac.uk](mailto:nicky.robinson@lsbu.ac.uk) (N. Robinson).

<sup>1</sup> <http://www.lsbu.ac.uk/>.

epidurals, early regional nerve blocks, mechanical vibratory stimulation [9], transcutaneous electrical nerve stimulation (TENS) [10] (ref: part 1 systematic review), and acupuncture [11] (ref: part 1 systematic review). However there is a general lack of randomized controlled trials that provide useful evidence (ref: part 1 systematic review). Potential valuable information has been excluded in the process of screening papers when conducting systematic reviews, which could be of benefit in practice or in future research. In addition, unlike other conditions such as low back pain, there is no standard information or guidance for practitioners on using acupuncture for the treatment of PLP/PLS.

This narrative review aims to provide clinical guidance for the use of acupuncture or TENS for PLP/PLS and to identify optimum treatment guidance which could be used for clinical practice or in future research.

## Method

In the comprehensive systematic review carried out, all studies mentioning PLP/PLS irrespective of their study design were included (ref: part 1 systematic review). The methodology of the systematic review and search terms are described in detail in the previous paper (ref: part 1 systematic review). The 36 case studies excluded from the previous systematic review are presented in this paper and were analyzed separately by two reviewers. Clinical characteristics were extracted including country of study, sample size, reasons for amputation, time since amputation, location of amputation, patient's age, symptom(s), intervention parameters, outcome measurements, and long term follow up.

The data extraction focused on the clinical application of acupuncture and TENS, rather than the outcome effectiveness, as single case studies are considered at the bottom of hierarchical evidence and the least likely to produce good evidence for practice [12].

A narrative description of clinical characteristics of included case studies is presented.

## Results

Characteristics of the 36 case reports/series are given in Table 1 [13–49]. Among the 36 case report/series identified, 26 used acupuncture [13–15,17,18,21,23–25,27–36,38,39,41,43,45–47,49], eight TENS [19,20,22,26,37,40,44,48], and two used both (acupuncture and TENS) [16,42]. Eleven case series originated from China [16,23,33–36,41,42,45–48] and 14 case reports were published in English [13–15,17–21,25–28,38,39]. Sample sizes of case series ranged from 6 to 29. Most Chinese case studies discussed the mechanism of treatments provided, using traditional Chinese medical (TCM) theory and possible biomedical mechanisms, while case studies published in English tended to have more detail on the treatments provided.

Twenty-eight case reports/series reported the effectiveness of acupuncture in the treatment of PLP/PLS (including case series which included both TENS and acupuncture) [13–18,21,23–25,27–35,38,39,41–43,45–47,49]. These

included 186 cases of which 33 were upper limb amputees, 77 lower limb and 76 where the amputation was insufficiently described. The causes of amputation were: 102 traumatic, 16 medical, 69 unknown (Lu [35] reported on 17 causes of amputation although only 16 were included in the case series). Age of amputees ranged from 12 to 79 years and time since amputation ranged from 1 day to 57 years.

Acupuncture treatment styles included body acupuncture (12/28), a mixture of scalp and body (5/28), auricular only (3/28), scalp only (3/28), not recorded (2/28), either TENS or body acupuncture (1/28), a mixture of scalp, auricular body and TENS (1/28), and press ring needles (a style of acupuncture which uses small needles which are usually retained post treatment) on the contralateral side (1/28). 13/28 case studies reported needling body points on the contralateral side, 3/28 the ipsilateral side and 2/28 the stump, 2/28 used central points (points near the spine), 7/28 used general body points, 5/28 did not specify body area needled. Of the case studies using scalp acupuncture 4/28 needled the contralateral side and 4/28 did not specify side used. None of the auricular case studies specified the side of body used. 3/28 case studies reported using electro-acupuncture and 1/28 moxibustion in conjunction with acupuncture.

Point choice varied between individual case reports. A total of 52 different body acupuncture points were recorded. Meridians most frequently used were the *Yang Ming* (large intestine/stomach meridian), with 19 of the 52 points used being on these meridians. Mode point used was Liv 3 which was used in 11 of the studies. LI 4 was used in nine studies and Sp 6 in seven. Of the three studies reporting on scalp acupuncture only, two used different styles of treatment (Yamamoto New Scalp Acupuncture and Chinese scalp acupuncture) and one did not specify treatment given. Two of the three studies reporting on auricular acupuncture only used a single point to affect a specific area of the body. Needle retention time varied from 30 s to 3–4 days with the majority of studies reporting 30–40 min duration.

The Chinese studies record total number of treatments ranging from 1 to 60 with mode number of cases reporting between 10 and 30 treatments. Five studies did not record the total number of treatments [16,23,29,41,47]. Treatment frequency was recorded as daily in the majority of papers. In the English reports, the total number of treatments ranged from 1 to multiple with the majority (7/15 cases) reporting 4–7 treatments. The frequency of treatment ranged from daily to every 2 weeks, treatment was most commonly reported as weekly (4 cases).

There were eight case reports/series on the effectiveness of TENS intervention in the treatment of PLP/PLS [19,20,26,37,40,44,48,50] and two on both TENS and acupuncture (as reported above) [16,42]. The eight TENS-only papers included 71 cases of which 10 were upper limb amputees, 37 lower limb and 22 unknown. Cause of amputation was trauma in 43 cases, medical in 16 cases and unknown cause in 12 cases. Age of amputees was reported for 7/8 cases who ranged from 5 to 87 years. Time since amputation ranged from <72 h post-surgery to 28 years, with a wide variation of time periods within this spectrum. Treatment consisted of TENS at locations including contralateral side (4) [19,22,26,44], the stump (3) [22,44,48],

Download English Version:

<https://daneshyari.com/en/article/5807966>

Download Persian Version:

<https://daneshyari.com/article/5807966>

[Daneshyari.com](https://daneshyari.com)