Appendix 1 (as supplied by the authors): further details on exclusion criteria, electroacupuncture treatment protocol and outcome measurements

Exclusion of patients with cervical radiculopathy

Cervical radiculopathy at C6 level is associated with pain down the superior lateral aspect of the arm into the first two digits. This overlaps with pain presentation in carpal tunnel syndrome (1). Hence, cervical radiculopathy were proactively screened out by examining the existence of related symptoms and signs. To this end, Spurling's test and Valsalva's maneuver were conducted at baseline screening, and patients with a positive results for either test were excluded (2) (3). Positive result from Spurling's test reflects exacerbation of C6 radicular pain, but not median nerve entrapment. For Valsalva maneuver, an attempt to exhale against a closed airway leading to an increase in intrathoracic and intrathecal pressure. A positive sign is an increase in pain from cervical impingement secondary to the increased pressure (4).

Details of electroacupuncture treatment protocol

The electroacupuncture treatment protocol is designed with reference to functional magnetic resonance imaging studies conducted by Napadow et al (5) (6) and best practice described in Chinese medicine literature (7) (8) (9) (10). Specifically, patients received 13 sessions of electroacupuncture over 17 weeks. Patient can choose to attend 1-2 sessions per week over 17 weeks, but the maximum number of acupuncture session is 13. We encouraged patients to attend all 13 sessions.

The following eight acupoints were applied: TW-5, PC-7, HT-3, PC-3, SI-4, LI-5, LI-10 and LU-5 on the affected side. Both sides were treated for bilateral CTS but only outcomes from the dominant hand were recorded. Two Chinese medicine practitioners fully registered with the Chinese Medicine Council of Hong Kong performed the electroacupuncture treatment, both of which possessed 10 years of clinical experience and 5 years of full time training in Chinese medicine. Each session is performed with the subject in sitting position. After disinfecting the skin, the Chinese medicine practitioner would insert sterile, single use filiform needles (Dongbang Acupuncture Needle DB100, 0.25x40 mm, Dong Bang Acupuncture Inc, Chungnam, Korea) into each acupoint with the aid of a guide tube. Punctures were made to a depth of 1–3 cm, depending on the thickness of the patients' wrist, hand and forearm. After insertion, the Chinese medicine practitioner would perform bidirectional rotations of the needle sheath to achieve *De qi*, indicating a patient reported sensation of soreness, tingling, heaviness or distension at each acupoints. This is a traditional procedure in acupuncture practice.

Appendix to: Chung VCH, Ho RST, Liu S, et al. Electroacupuncture and splinting versus splinting alone to treat carpal tunnel syndrome: a randomized controlled trial. *CMAJ* 2016. DOI:10.1503/cmaj.151003.

After insertion of all acupoints, electro-stimulation was applied immediately in the following combinations: (i) TW-5 + PC-7, (ii) SI-4 + LI-5, (iii) LI-10 + LU-5, and (iv) HT-3 + PC-3, using the Hwato SDZ-II electroacupuncture instrument (10-20 mA, 20-40 Hz, continuous wave). The intensity was fine-adjusted to trigger a muscle twitch that is tolerable to the patient. The electro-simulation lasted for 20 minutes and then needles were removed. Spot checks on intervention integrity were performed by either of the co-authors (RH or SL) in every session. This treatment protocol was pre-tested in 10 patients prior to the beginning of trial. The purpose of pre-test was to ensure standardization of intervention procedure between the two practitioners.

Details of outcome and adverse event measurement

The Functional Status Scale of the Boston Carpal Tunnel Syndrome Questionnaire has a summary score of 1 to 5, with a higher rating from the patient indicating greater functional limitations (11). The Disabilities of the Arm, Shoulder, and Hand Questionnaire includes physical, social, and psychological function domains, with a summary score of 0 indicating no disability and 100 equating maximum disability (12). Both the Boston Carpal Tunnel Questionnaire and the Disabilities of the Arm, Shoulder, and Hand Questionnaire were found to be sensitive to clinical changes in CTS (13) (14). Validated Hong Kong Chinese versions of Boston Carpal Tunnel Questionnaire and Disabilities of the Arm, Shoulder, and Hand Questionnaire were used in this trial (15) (16).

A 0 to 10 point numerical rating scale (NRS) was used to measure pain intensity (17). It is acknowledged that both NRS and visual analog scale (VAS) are reliable and valid approaches for measuring pain measurement. They did not differ in terms of their responsiveness in detecting pain reduction associated with treatment (17).However, patient acceptance of VAS is lower and it usually demonstrate greater amount of missing and incomplete data when compared to NRS. Also, repeated scorings using the VAS can vary by as much as 20%. This could contribute to the clinically significant reduction in pain, suggested to be approximately 30–33%. The NRS provide interval data that is as sensitive as the VAS, and it is easier to administer, record, and for patients to understand (18). Considering the limitations of VAS, NRS was used in this trial.

For measuring sensation, the Semmes-Weinstein monofilament test was performed (19). For dexterity, both blinded and un-blinded versions of the Dellon-modified Moberg pick-up test were conducted (20). For strength, maximal tip pinch strength was measured by a hydraulic gauge pinch dynamometer (B&L Engineering PG-30 Pinch Gauge) (21) (22). For Dellon-Modified Moberg Pick-Up Test and Maximal Tip Pinch Strength, three measurements were made per test and the average of the three measurements was recorded. As established outcome measures for carpal tunnel syndrome, reliability and validity of all measures has been well established.

Information for further details on the reliability and validity of each outcome measures is presented in Table 1 below:

Table 1: Reliability and validity of various outcome measures

Outcome	Sources for further information
Boston Carpal Tunnel Questionnaire (Hong Kong Chinese Version)	Hong Kong Medical Journal. 2007;**13**(5):342-7.
Disabilities of the Arm, Shoulder, and Hand Questionnaire	Journal of Hand Surgery. 2005;**30**(1):29-34.
Numerical rating scale for pain intensity	Pain. 2005;**113**(1-2):9-19.
Semmes-Weinstein monofilament test	NeuroRehabilitation, 2014; **35**(3): 543-552
Dellon-Modified Moberg Pick-Up Test	Journal of the Peripheral Nervous System. 2011;**16**(1):51-8.
Maximal Tip Pinch Strength	The Journal of Hand Surgery, 1984; **9**(2): 222-226.

Adverse events related to electroacupuncture and splinting were monitored using a previously published approach (23). Patients were asked if they had experienced any discomfort, separately for electroacupuncture and splinting. If an affirmative answer was given, then patients were invited to describe the adverse events in detail. Then, they were asked to assess whether the intervention (separately for electroacupuncture and splinting) caused the adverse events on a 4 point Likert scale (1=very likely, 4=very unlikely). We considered the presence of adverse events when the rating was 1 or 2. For electroacupuncture plus splinting group, adverse events for each treatment were asked separately. For splinting group, only adverse events for splinting were assessed. Serious adverse events, including death, life-threatening diseases, conditions or symptoms requiring hospitalization, or other consequences causing permanent disability were also recorded.

All outcomes were evaluated in face to face interviews at baseline and 17^{th} week. In addition, telephone interviews were conducted at 1^{st}, 2^{nd} and 5^{th} weeks to record Boston Carpal Tunnel Questionnaire and the Disabilities of the Arm, Shoulder, and Hand Questionnaire, pain intensity scores and adverse events. In this study, all tests and questionnaires were performed by interviewers blinded to patients' allocation status. For bilateral CTS, outcomes were assessed for the dominant hand. All patients' demographic, lifestyle and health status data were recorded at baseline. Compliance to electroacupuncture was measured by attendance to treatment session.

Splinting compliance for all patients was assessed by interviewers, assisted by a diary kept by the patients. Participants were invited to report on day-to-day use of splint at each follow-up, to the interviewers.

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