Editorial Commentary

Acupuncture for neck pain: current evidence and challenges

Sileyda Costa, Arthur de Sá Ferreira^

Postgraduate Program in Rehabilitation Sciences, Centro Universitário Augusto Motta/UNISUAM, Rio de Janeiro, Brazil

Correspondence to: Arthur de Sá Ferreira, PhD. Postgraduate Program in Rehabilitation Sciences, Centro Universitário Augusto Motta/UNISUAM, Rua Dona Isabel 94, Bonsucesso, Rio de Janeiro, RJ, Brazil. Email: arthur_sf@icloud.com.

Received: 28 February 2022; Accepted: 12 October 2022; Published: 30 December 2022.

doi: 10.21037/lcm-22-8

View this article at: https://dx.doi.org/10.21037/lcm-22-8

Musculoskeletal disorders and neck pain

Musculoskeletal pain affects people of all age groups globally and contributes to high levels of disability (1). Musculoskeletal pain can be acute, self-limiting, or chronic, and is often associated with pain in other regions (2). Chronic musculoskeletal pain poses a personal burden and is a public health problem, being one of the main reasons for seeking health services (1,3). In Brazil, chronic musculoskeletal pain is one of the main causes of disability retirement (4).

Neck pain is a frequent complaint of patients with disorders of the musculoskeletal system (5). Neck pain may be associated with limited movement of the cervical and thoracic spine, headaches, and pain radiating to the upper limbs (5,6). Neck pain is considered one of the most relevant symptoms referring to the spine, with an incidence of 10% of the adult population and recent data suggest that the incidence of neck pain is increasing; it is estimated that 22% to 70% of the population will have neck pain at some point in their lives (7,8). Neck pain can be due to systemic, musculoskeletal, or neurological conditions involving the cervical region. Laboratory, electrophysiological, and imaging tests do not necessarily identify the source of neck pain, and many 'abnormalities' evidenced in imaging tests are not related to painful conditions either. In most cases, it is not possible to establish a single—or multiple—if any cause as pain is an individual experience influenced not only by biological factors, but also by cognitive, emotional, behavioral, environmental, and social factors (5,6). Psychosocial factors are also involved when functional limitations do not match the structural condition and the established diagnosis (5).

Current evidence for management of neck pain using acupuncture

Treatments for neck pain are varied, as are perceptions of their benefits. Both acute and chronic neck pain can be managed with medications and other modalities such as supervised exercise (physical activity), physical therapy, cognitive-behavioral therapy, manual therapy, education, physical agents, and multidisciplinary treatment (5). Complementary, alternative, and integrative medicine (9) plays an important role in all settings, especially in low-resource settings; acupuncture is among the options for some people with primary neck pain (10).

Traditional Chinese medicine (TCM) is among the medical systems practiced as a supporting intervention of medicine or as a single therapeutic intervention for the prevention, treatment, or rehabilitation (11). The landscape of TCM includes more applicable and natural resources such as acupuncture and moxibustion, herbal and food therapy, therapeutic massage, physical exercises, and breathing exercises (12). TCM offers several health practices aimed at the well-being of the body in a more integrative way, both in terms of physical and mental. One of the best-known and most used practices is acupuncture, which aims to restore the balanced functioning of the body and prevent diseases and conditions. It is a method that stimulates specific points of the body in channels with needles to aiming to restore or maintain health (12).

There is an increasing interest in research on this topic, with more than 325 papers published over the last 20 years (13). Acupuncture for neck pain—via manual stimulation, electroacupuncture, or transcutaneous electrical stimulation of acupuncture points (14)—can promote

^ ORCID: 0000-0001-7014-2002.

Table 1 Acupuncture points used for research on the effects of acupuncture on neck pain reported in the 27 randomized controlled trials included in a Cochrane systematic review (19)

Large intestine channel	Small intestine channel	Bladder channel	Triple energizer channel	Gallbladder channel	Liver channel	Governor vessel	Extra points
LI4 (Hegu)	SI3 (Houxi)	BL10 (Tianzhu)	TE5 (Waiguan)	GB20 (Fengchi)	LR3 (Taichong)	GV14 (Dazhui)	Ex-HN15 (Jingbailao)
LI3 (Sanjian)	SI6 (Yanglao)	BL11 (Dazhu)	TE14 (Jianliao)	GB21 (Jianjing)		GV16 (Fengu)	Ashi
LI11 (Quchi)	SI12 (Bingfeng)	BL60 (Kunlun)		GB34 (Yanglingquan)		GV20 (Baihui)	
LI14 (Binao)	SI13 (Quyuan)			GB39 (Xuanzhong)			
	SI15 (Jianzhougshu)						

analgesia via mechanisms for pain management (15).

Major challenges

First major challenge comprises establishing the efficacy and effectiveness of the intervention in the management of patients with neck pain. An individual patient data meta-analysis including 5 studies in patients with neck pain suggests that 'acupuncture is effective for the treatment of chronic pain' (16). A more recent Cochrane systematic review including 27 randomized controlled trials also supported these findings with moderate-quality evidence, but it is currently withdrawn (https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004870.pub5/full) from the Cochrane library since 2016 for review (14). Hence, it is apparent that the effects and/or efficacy based on low-bias, high-level evidence are yet to be established.

In the context of TCM, diseases are the manifestation of a *yin-yang* imbalance and the diagnosis is based on the 'pattern' or 'syndrome' (*zheng*), whereas interventions consist of restoring such balance (12,17). Many diseases can be similar to some TCM patterns, whereas some TCM patterns can include certain diseases. Hence, pattern differentiation, rather than disease diagnosis, is essential to select the appropriate therapeutic intervention (17). Identifying the underlying TCM pattern for a given disorder or disease is hence advocated as a requirement for selecting acupuncture points (18). *Table 1* summarizes the acupuncture points used in the Cochrane systematic review (19) on the effects of acupuncture on neck pain. Despite other variations when delivering the intervention (e.g., number of points per patient, actual combinations of points, frequency of sessions) it can be noticed that more than 20 points have been investigated in a variety of combinations. Also, literature reports suggest acupuncture point selection is influenced by the author's own experience along with traditional indications.

The choice of acupuncture points is another challenge that requires investigation. Because acupuncture points are selected according to the underlying TCM pattern, they might differ between patients at baseline and in the course of treatment (12,17). There is still a need for interpretation and caution in the pattern differentiation of each patient, therefore the combination of points for neck pain suggested in a standard proposes a more in-depth intervention according to the patient's individuality. Further research may help determine what acupuncture therapeutic procedures for neck pain is effective. Interestingly, the number of needles does not seem to affect the acupuncture therapeutic effect on pain (20). The choice of acupuncture points also needs to consider a risk-benefit assessment. Acupuncture is considered a safe procedure with few adverse events (21), although minor and serious adverse events may occur during acupuncture interventions (22).

Final considerations

TCM resources are considered reasonable choices for therapeutic rehabilitation of patients with neck pain and can be incorporated into rehabilitation (12). TCM is practiced by health professionals from various fields, as a complementary or unique intervention for prevention, treatment, or rehabilitation (23). Nonetheless, major challenges on the research of acupuncture therapeutic effects are yet to be addressed, including the complex nature of acupuncture interventions; the required level of background, training, and expertise of the professional delivering acupuncture; and the single or combined effects of acupuncture and other interventions targeting (musculoskeletal) neck pain (24). Finally, incorporating

acupuncture interventions that show moderate-to-large effects with moderate or high certainty evidence—neck pain included (25)—might help mitigate this public health problem.

Acknowledgments

Funding: This study was supported by the Fundação Carlos Chagas Filho de Apoio à Pesquisa do Estado do Rio de Janeiro (FAPERJ, No. E-26/211.104/2021) and Coordenação de Aperfeiçoamento de Pessoal (CAPES, Finance Code 001; No. 88881.708719/2022-01, and No. 88887.708718/2022-00).

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Longhua Chinese Medicine*. The article has undergone external peer review.

Peer Review File: Available at https://lcm.amegroups.com/article/view/10.21037/lcm-22-8/prf

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at https://lcm.amegroups.com/article/view/10.21037/lcm-22-8/coif). ASF serves as an unpaid Associate Editor-in-Chief of *Longhua Chinese Medicine* from May 2022 to April 2024. The other author has no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/lcm-22-8
Cite this article as: Costa S, Ferreira AS. Acupuncture for neck pain: current evidence and challenges. Longhua Chin Med 2022;5:32.