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CONFERENCE ABSTRACTS

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A Scientific Investigation of the Traditional Medical Arts of Acupuncture Therapy Using Biological Functions

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Abstract

Objective: We discuss the fundamental and the clinical effects and the mechanism of acupuncture application. Further, the most effective acupuncture method is investigated from the view point of the function of the autonomic nervous system (ANS).

Methods: Human experiments were conducted with the heart rate (HR) as an indicator. For example, eight kinds of conditions were studied to find the best acupuncture method; then, the following three conditions were compared: position (sitting/lying), respiration (expiratory/inspiratory), and depth (superficial/deep). With the ANS blockers (atropine and propranolol), the ANS responded when acupuncture needles were inserted.

Result: With the application of acupuncture, the HR decreased. At that time, the function of the parasympathetic nervous system (PNS) increased while that of the sympathetic nerve β receptor (SN β) decreased. The decrease in the heart rate was about 5–10 beats/min, and this decrease was 10 ± 8.2% compared to the basic HR (Nishijo K *et al.*, Neurosci Lett. 1997). Further, the best combination of conditions for acupuncture application was found to be as follows: for position, sitting > lying; for respiration, expiratory > inspiratory; for depth, superficial > deep.

Discussion: For the fundamental response, the decrease in the HR was shown to be due to the response of the ANS. In addition, the function of the PNS was shown to be increased and that of the SN β to be decreased. Further, we found six pathways for the mechanism of the ANS. As to the clinical response, the best combination of conditions for the application of acupuncture, which was found to provide the maximum bedside effect, was sitting position, expiratory respiration and superficial depth. **Keywords:** acupuncture using biological functions, body position, deep breath, traditional medical acupuncture

Characteristics and Implications of RCTs on Acupuncture Conducted in Japan: Systematic Reviews

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Abstract

In Japan, the first randomized controlled trial (RCT) on acupuncture was conducted in the 1960s. Since the seven-year hiatus between 1990 and 1996, RCT papers on acupuncture have been increasing in Japan. Their methodological quality, however, is not necessarily improving in terms of sample size, ITT analysis, STRICTA, etc. The number of RCTs comparing different styles of acupuncture treatment or different acupoints, as well as the number of sham-controlled RCTs, in Japan has shown a relative increase. Many of the RCT papers on acupuncture have been written in Japanese and published in domestic journals, even after 2000. Therefore, systematic reviews/meta-analyses generally do not include most of the RCTs conducted in Japan. The so-called "sham needle" or "placebo needle" in RCTs on acupuncture often is the same as some Japanese-style acupuncture techniques, such as the spoon needle, the infant needle, the press (tack) needle, the intradermal needle and superficial skin-cutting. Therefore, we believe this to be the reason that many Japanese acupuncturists disagree with the idea of a RCT introducing sham or placebo needling for a control group. Furthermore, our systematic review suggests the possibility of a penetrating sham needle being more effective than a non-penetrating sham needle under some conditions. We have recently been conducting other systematic reviews focusing on acupuncture with shallow and slight stimulation, e.g., acupuncture using a press needle. Because RCTs on acupuncture using the press needle, in which a double-blind design was used, have rarely been conducted outside Japan so far, the findings from relevant studies might shed new light on understanding acupuncture.

Keywords: control, Japan, press needle, quality, randomized controlled trial, systematic review

From Nociception to Chronic Pain

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Abstract

This session is on pain management by acupuncture. However, as with any other pain therapy, a need exists to precede any treatment not only with a search for the origin of pain but also with an understanding of the way in which nociceptive systems react to the sources of their activation. As recently summarized in the Encyclopedia of Pain (Gebhart, Schmidt, eds.; 2nd ed., Springer 2013, pp 1-4348, vol.7, print and ebook), there is an abundance of new insights into the mode of operation of nociception that finally leads to acute and chronic pain sensations. As will be outlined, considerable progress has been made in identifying the characteristics of nociceptors and of the pathways along which they send their signals to the cortical centers responsible for the conscious sensation of pain. Less progress has been made in elucidating the mechanisms, physical and psychological, responsible for turning acute pain into chronic suffering, particularly when the tissue damage has been long gone or when it was not present in the first place. Even less progress can be reported regarding the mysteries of neuropathic pain. The reasons for our ignorance and possible ways to reduce it will be discussed.

Trigger Point Acupuncture Treatment for Myofascial Pain Syndrome (MPS)

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Abstract

Evidence exists for the efficacy of acupuncture treatment for chronic pain, such as myofascial pain syndrome (MPS). However, which acupuncture modes are the most effective remains unclear. On the other hand, the myofascial trigger points have often been used in the treatment of MPS. The myofascial trigger points have been defined as highly localized and hyper-irritable spots in a palpable taut band of skeletal muscle fibers. Important characteristics of myofascial trigger points include local pain or tenderness, referred pain or referred tenderness, and a local twitch response. Acupuncture or dry needling of a myofascial trigger point acupuncture on chronic pain are still unclear. We compared the effect of trigger-point acupuncture treatment with that of sham acupuncture treatment and/or standard acupuncture treatment on pain and the quality of life (QOL) in patients with MPS. In this systematic review, clinical results on chronic pain suggested that the analgesic effect of trigger-point acupuncture is better than that of sham acupuncture and/or standard acupuncture ture. Myofascial active trigger points are thought to be sites where nociceptors, such as polymodal-type receptors, become sensitized by various factors. In particular, sensitized nociceptors might be a possible cause of localized tenderness, referred pain, and the local twitch response. Moreover, trigger-point insertion of the needle, but not always acupuncture-

point insertion of the needle, affects sensitized nociceptors. Thus, acupuncture stimulation of myofascial active trigger points may produce greater activation of sensitized polymodal-type receptors, resulting in greater pain relief. **Keywords:** acupuncture, chronic pain, myofascial pain syndrome, trigger point, musculoskeletal pain

Physiological Activities Elicited by Acupuncture and Its Sham Devices in Humans and Rats

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Abstract

Objective: The purpose of this study was to use electrophysiological procedures to examine the physiological activities of various sham interventions used in recent clinical trials involving acupuncture.

Methods: Neural activities elicited by various real and sham acupuncture stimuli were examined. In humans, CMH (C mechano-heat) units in the common peroneal nerve were recorded by using microneurography. In rats, the activities of nociceptive specific (NS) neurons in the somatosensory (VB), the endogenous pain inhibitory (PAG/NRD), and the rewarding (NACC) systems were analyzed by using single unit recording. The protocols of both experiments were approved by the ethical committee of Meiji University of Oriental Medicine.

Results: In humans, all CMH units (n=10) tested were activated or inhibited by real acupuncture, press tack needle (PTN) acupuncture, and non-penetrating acupuncture, but not by sham PTN acupuncture. In rats, acupuncture stimulation, including real PTN stimulation, could activate or inhibit NS neurons in the VB, the PAG/NRD, and the NACC systems. These response patterns were similar to those evoked by a noxious pinch. No response was elicited by sham PTN acupuncture.

Conclusion: The fact that the sham interventions used could activate the CMH units, presumably C polymodal receptors, clearly refutes the physiological inertness of so-called sham interventions. The use of a PTN might be beneficial for future clinical trials on acupuncture as only sham PTN acupuncture can be considered an inert intervention.

Keywords: C mechano-heat unit, endogenous pain inhibitory systems, microneurogram, press tack needle, rewarding systems, sham acupuncture.