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Contents

1. Relationship between regional mast cell activity and peripheral nerve discharges during manual acupuncture stimulation of "Zusanli" (ST 36)
2. MRI evaluation of metal acupuncture needles
3. Acupuncture (ST 36) Reduces Jaw Open Reflex in a Rat: A Pilot Study
4. Acceptability of an acupuncture intervention for geriatric chronic pain: an open pilot study
5. Observation on the immediate effects of acupuncture at Yanglingquan(GB 34) on passive movement in cerebral infarction patients
6. Neural Encoding of Acupuncture Needling Sensations: Evidence from a fMRI Study
7. Insufficient evidence to determine the impact of patient preferences on clinical outcomes in acupuncture trials: a systematic review
8. Can Acupuncture Treat Alzheimer's Disease and Other Neurodegenerative Disorders?
9. Effect of moxibustion treatment on cell apoptosis and expressions of heat shock protein and second mitochondrial activator of caspase in acute gastric mucosal lesion of rats

Relationship between regional mast cell activity and peripheral nerve discharges during manual acupuncture stimulation of "Zusanli" (ST 36)

<http://europepmc.org/abstract/MED/23819213>

Zhen Ci Yan Jiu [2013, 38(2):118-122] by Sa ZY.

OBJECTIVE: To observe changes of discharges of the sciatic nerve branch and mast cell activities and collagen fibers in the acupoint area during manual acupuncture stimulation of "Zusanli"(ST 36), so as to reveal the relationship between peripheral nerve and

mast cell activities.

METHODS: A total of 30 male SD rats were divided into normal, acupuncture control (an acupuncture needle was into ST 36 without manipulation), manual

acupuncture (MA), disodium cromoglycate (DSCG, suppressing mast cell activity) plus acupuncture (MA + DSCG) and collagenase (dissolving the collagen fibers) plus acupuncture (MA+ collagenase) groups (6 rats/group). After dissection of a branch of the sciatic nerve innervating ST 36 region in the left hind-limb under anesthesia, the ipsilateral ST 36 was stimulated by manipulating the acupuncture needle for 20 min. Discharges of the sciatic nerve branch were recorded by using a pair of metal electrodes and data acquisition system (Power Lab). Skin and muscle tissues of ST 36 area were sampled, sliced and stained with Toluidine Blue for detecting the number of degranulated mast cells.

RESULTS: Compared with the control group, the mean power spectrum of discharges of the sciatic

nerve and the mean rates of the degranulated mast cells in "Zusanli" (ST 36) area in the MA group were significantly increased ($P < 0.01$). Whereas the mean power spectrum of discharges of the sciatic nerve and the mean degranulation rates of mast cells were considerably lower in the MA + DSCG group and MA+ collagenase group than in the MA group ($P < 0.01$). No significant differences were found between the normal and control groups, and between the MA+DSCG and MA+collagenase groups in the mean power density and degranulation rates of mast cells ($P > 0.05$).

CONCLUSION: Manual acupuncture stimulation of Zusanli (ST 36) can significantly potentiate the discharge activity of the sciatic nerve and induce degranulation of mast cells at the same time, suggesting an involvement of mast cells in initiating acupuncture signals by peripheral sensory nerve.

MRI evaluation of metal acupuncture needles

<http://acupmed.bmjournals.com/content/early/2013/08/16/acupmed-2013-010392>.

Acupunct Med doi:10.1136/acupmed-2013-010392 By Liang Mei

Objective To evaluate the MR compatibility of three metal acupuncture needles (a standard stainless steel needle, a gold needle and an austenitic stainless steel needle) by comparing their imaging artefacts, radiofrequency heating effects and ease of operation.

Methods The MRI artefacts of the three metal needles were first evaluated by placing them in an agar gel phantom and performing MRI of the phantom. The increase in temperature during MRI was recorded using an MR-compatible fibreoptic thermometer. MRI of acupuncture at SP6 was performed using the MR-compatible gold needle and the austenitic stainless steel needle.

Results The standard stainless steel acupuncture needle produced large imaging artefacts on MRI. The gold needle was superior for MRI but not rigid enough for some clinical applications such as scalp acupuncture. The austenitic stainless steel needle is non-ferromagnetic and compatible with MRI. None of these acupuncture needles introduced radiofrequency heating during MRI.

Conclusions The evaluation of MR compatibility showed that gold and austenitic stainless steel needles are MR-compatible and therefore can be used for MRI of acupuncture.

Acupuncture (ST 36) Reduces Jaw Open Reflex in a Rat: A Pilot Study

<http://garj.org/garjmms/pdf/2013/february/Goddard.pdf>

Global Advanced Research Journal of Medicine and Medical Sciences Vol. 2(2) pp. 038-040, February, 2013. By Greg Goddard

Acupuncture has been shown to reduce pain in rats. Morphine is the standard of analgesia and has been shown to reduce the JOR in rats by about 50%. Jaw Opening Reflex is a validated measurement of pain in rats. Other methods of pain response such as tail flick to heat have also been used. Stomach 36 is an important point in reducing pain in both animals and humans. St 36 has been often used in rats because it is easy to locate anatomically on small animals. The purpose of the present study was to test the hypothesis that acupuncture at Stomach 36 would decrease pain as measured by a decrease in the

jaw opening reflex of a rat. An electrode is placed in the pulp of the lower incisor of a rat and in the digastric muscle, and after placing an acupuncture needle at St 36, an electrical stimulus was applied to the pulp and the JOR is measured. One rat was tested in a laboratory. After placing an acupuncture needle at St 36, an electrical stimulus was applied to the pulp and the JOR is measured. The change in JOR was measured over time. We had a significant drop in JOR with acupuncture at ST 36 with an N of 1. This pilot study shows promise for more studies using a larger sample size.

Acceptability of an acupuncture intervention for geriatric chronic pain: an open pilot study

<http://www.jcimjournal.com/articles/publishArticles/pdf/jintegrmed2013005.pdf>

J Integr Med. 2013; 11(1): 26-31. By Marie-France Couilliot

OBJECTIVE: This study investigated the acceptability and effectiveness of acupuncture for persistent musculoskeletal pain in the elderly and assessed the conditions for a future controlled trial.

METHODS: A total of 60 patients, hospitalized in a geriatric hospital were enrolled. The intervention consisted of eight acupuncture sessions. The main outcome was the patient's participation rate. Regarding pain, the evaluation was based on pre- and post-treatment variations. As a high proportion of the patients had cognitive impairment, the behavioral pain scale DOLOPLUS-2 was chosen although self evaluation was used wherever possible.

RESULTS: The mean age of the patients was 83 years. The acceptance rate was very high (89.6%) and 90% of the patients completed the entire course of treatment. After five weeks, the mean DOLOPLUS score had decreased significantly ($P < 0.01$). The patients reported improved sleep quality and a reduction in their anxiety symptoms. Furthermore, caregivers noticed a decrease in patient aggressiveness making care easier.

CONCLUSION: Our results suggest that acupuncture is highly acceptable and could be very useful in the management of chronic pain when performed in very old frail people with chronic physical and mental disability.

Observation on the immediate effects of acupuncture at Yanglingquan(GB 34) on passive movement in cerebral infarction patients

<http://europepmc.org/abstract/MED/23620941>

Zhongguo Zhen Jiu. 2013, 33(2):131-136. By Si WG

OBJECTIVE: To observe central immediate effect of acupuncture at Yanglingquan (GB 34) on passive movement of cerebral infarction patients with hemiplegia by functional magnetic resonance imaging (fMRI) and provide reference for clinical treatment.

METHODS: With 1.5 T MRI scanner, six cases of right cerebral infarction patients with left hemiplegia in recovery stage were scanned during passive fingers movement before and after acupuncture at Yanglingquan (GB 34), which was controlled with sham-acupoint acupuncture to observe immediate activated part of the corresponding brain.

RESULTS: The activated areas of the passive movement in all the patients were mainly motor sensory cortex on the right side. Compared with sham-acupoint, in the left anterior insula, inferior frontal gyrus, central gyrus, fusiform gyrus, cerebellum, acupuncture at Yanglingquan (GB 34) has better central effect. These areas were involved with several brain networks.

CONCLUSION: The acupuncture at Yanglingquan (GB 34) could promote recovery of hemiplegia by regulating motor-related network.

Neural Encoding of Acupuncture Needling Sensations: Evidence from a fMRI Study

<http://dx.doi.org/10.1155/2013/483105>

Evidence-Based Complementary and Alternative Medicine Volume 2013 (2013), Article ID 483105, 15 pages By Xiaoling Wang

Deqi response, a psychophysical response characterized by a spectrum of different needling sensations, is essential for Chinese acupuncture clinical efficacy. Previous neuroimaging research works have investigated the neural correlates of an overall deqi response by summing the scores of different needling sensations. However, the roles of individual sensations in brain activity and how they interact with each

other remain to be clarified. In this study, we applied fMRI to investigate the neural correlates of individual components of deqi during acupuncture on the right LV3 (Taichong) acupoint. We selected a subset of deqi responses, namely, pressure, heaviness, fullness, numbness, and tingling. Using the individual components of deqi of different subjects as covariates in the analysis of percentage change of bold signal, pressure

was found to be a striking sensation, contributing to most of negative activation of a limbic-paralimbic-neocortical network (LPNN). The similar or opposite neural activity in the heavily overlapping regions is found to be responding to different needling sensations, including bilateral LPNN, right

orbitofrontal cortex, and bilateral posterior parietal cortex. These findings provide the neuroimaging evidence of how the individual needle sensations interact in the brain, showing that the modulatory effects of different needling sensations contribute to acupuncture modulations of LPNN network.

Insufficient evidence to determine the impact of patient preferences on clinical outcomes in acupuncture trials: a systematic review

<http://www.sciencedirect.com/science/article/pii/S0895435612003071>

Journal of Clinical Epidemiology Volume 66, Issue 3, Pages A1-A4, B1-B4, 241-352 (March 2013)

Objective

To review reporting of preferences in acupuncture studies and their effect on clinical outcomes.

Study Design and Setting

Systematic review of published randomized and quasi-randomized controlled trials of acupuncture reporting participant preferences for randomization or treatment or using a preference design.

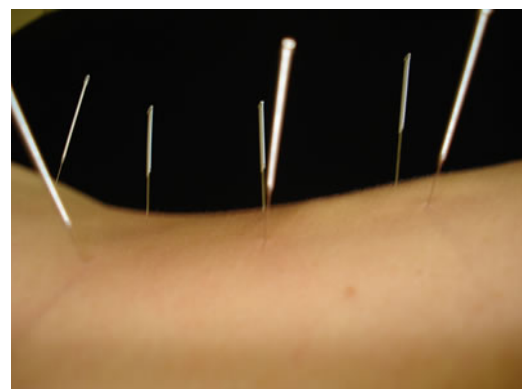
Results

Of the 31 included trials, 5 reported on randomization preference, 18 on treatment preference, and 1 reported on both. Seven used a preference design. Four out of seven trials noted that the group with preferences had different baseline characteristics (less education, worse baseline measure score, and greater or fewer years with pain). There was a tendency for greater attrition in nonpreference arms at 6 months but not earlier. Around three-quarters of participants turned down randomization in favor of nontrial treatment, and preference for acupuncture was around 20% when offered

multiple treatments. Questions used to elicit preferences varied across trials and were poorly reported. Ten trials reported the effects of preferences on outcomes; only one detected a statistically (but not clinically) significant difference.

Conclusion

There is little evidence that preferences cause detectable effects on outcomes in acupuncture trials; however, trials use inconsistent methods and poorly report these data. Monitoring the level and effect of preferences in trials is recommended.



Can Acupuncture Treat Alzheimer's Disease and Other Neurodegenerative Disorders?

http://link.springer.com/chapter/10.1007/978-1-4614-3357-6_8
Current Research in Acupuncture 2013, pp 255-301 by Tetsuya Asakawa

Abstract

The high morbidity, prevalence, and disability rates of neurodegenerative diseases (NDDs), especially Alzheimer's disease (AD)—the most common of all NDDs, with limited effective therapies, make it necessary to pay attention to alternative therapies, such as acupuncture. In fact, in the East Asian countries such as China and Korea, the practice of acupuncture for treating NDDs dates long back and continues to be popular in modern day clinical practice. There has been some progress in clinical and experimental studies on acupuncture therapy for NDDs. Although a number of Chinese studies claim that acupuncture is an effective therapy for AD, the flaws in their experimental design reduce

the worthiness of these studies. Mechanistic studies have also generated several hypotheses with regard to acupuncture for AD, e.g., cholinergic hypothesis, amyloid mechanism, tau protein theory, etc. However, rigorous and well-designed studies are required to investigate the underlying mechanism and testify the clinical efficacy. In this chapter, we provide a concise review on the progress of clinical and bench studies in this field and the future prospects of acupuncture in the treatment of AD. Also, we have briefly presented the clinical and experimental studies on acupuncture treatment for other NDDs, including motor neuron disease, multiple system atrophy, hereditary ataxia, and syringomyelia.

Effect of moxibustion treatment on cell apoptosis and expressions of heat shock protein and second mitochondrial activator of caspase in acute gastric mucosal lesion of rats

<http://www.sciencedirect.com/science/article/pii/S0254627213601363>

Journal of Traditional Chinese Medicine Volume 33, Issue 4, Pages 417-552 (August 2013) by Jie Yu

Objective

To investigate the effect of moxibustion-acupoint treatment with acupoints of Zusanli (ST 36) and Zhongwan (RN 12) on cell apoptosis and the expressions of heat shock protein (HSP) 60, HSP70 and second mitochondrial activator of caspase (Smac) in rat models of acute gastric mucosal lesion (AGML), and explore the mechanisms underlying protection of gastric mucosal lesion.

Methods

Twenty-four Sprague Dawley rats were divided into 3 groups, blank controlled group (group A), controlled-point group (group B) and acupoint group (group C), 8 for each. After 8-day moxibustion treatment in group B and C, gastric lavage of anhydrous ethanol was used to created

AGML in all three groups. The Guth method was employed to measure the ulcer index (UI) of gastric mucosal lesion and immunohistochemistry used to measure apoptosis with apoptosis index (AI) and examine the expressions of HSP60, HSP70 and Smac.

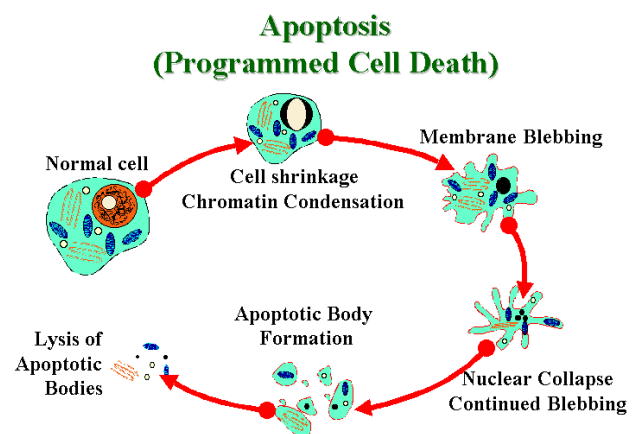
Results

Compared with group A, the expressions of UI, AI, Smac and HSP60 were markedly elevated in group B ($P < 0.05$ or $P < 0.01$). However the expression of HSP70 showed no obvious change ($P > 0.05$); the expressions of UI, HSP60 and HSP70 were markedly elevated in group C ($P < 0.01$) while those of AI and Smac became

obviously suppressed ($P < 0.01$). Compared with group B, the expressions of UI, AI and Smac decreased significantly in group C ($P < 0.01$) while those of HSP60 and HSP70 increased markedly ($P < 0.01$), and the expressions of HSP60 and HSP70 were considerably up-regulated ($P < 0.01$).

Conclusion

The moxibustion treatment could alleviate the gastric mucosal lesion caused by anhydrous ethanol, induce the over-expressions of HSP60 and HSP70, and down-regulate the expression of Smac, which could suppress cell apoptosis.



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