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**The Association of Traditional Chinese Medicine and
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Brain-derived Neurotrophic Factor Signaling Pathway: Modulation by Acupuncture in Telomerase Knockout Mice.

<http://www.ncbi.nlm.nih.gov/pubmed/26567448>

Altern Ther Health Med. 2015 Nov-Dec;21(6):36-46.

By Lin D

Abstract

CONTEXT:

Telomerase is a critical enzyme that is involved in aging and cancer and that is thought to be a part of multiple neurological diseases.

OBJECTIVE:

To investigate the telomerase response in the brain to acupuncture, the study examined the levels of expression of brain-derived neurotrophic factor (BDNF) and its downstream signaling molecules, including tyrosine kinase receptor B (TrkB), p75 neurotrophin receptor (p75NTR), protein kinase B (Akt), extracellular signal-regulated protein kinase (ERK1/2), and nuclear factor κ B (NF- κ B).

DESIGN:

Both telomerase-deficient (*Terc*^{-/-}) mice (*Terc*^{-/-} group) and normal, wild-type (WT) mice (WT group) were randomly assigned to 1 of 3 subgroups, 1 receiving acupuncture (acupuncture subgroup), 1 receiving sham acupuncture therapy (sham subgroup), and 1 receiving no treatment (control subgroup).

SETTING:

The study occurred at the University of South Florida Health Byrd Alzheimer's Institute (Tampa, FL, USA).

INTERVENTION:

The 2 acupuncture subgroups received acupuncture at the stomach 36 (ST-36)

position for 30 min/d for 4 d. For the 2 sham groups, the sham point was set at a location approximately 3 mm to the lateral side of the tail on the gluteus muscle following the same schedule.

OUTCOME MEASURES:

After 4 d, the mice were sacrificed, and the brain tissues were collected. The protein levels in the hippocampus and dentate gyrus (DG) of each mouse were determined by western blotting and immunostaining assays.

RESULTS:

The *Terc*^{-/-} group showed downregulated hippocampal BDNF expression compared with the WT mice. Acupuncture at ST-36 for 4 d upregulated BDNF, TrkB, p75NTR, Akt, and ERK1/2 in the DG and hippocampus of the telomerase-deficient mice, but that result was not seen in the WT mice with normally functioning telomerase.

CONCLUSIONS:

The use of acupuncture in pathologies associated with telomerase deficiencies, such as Alzheimer's disease (AD) and Parkinson's disease (PD), may provide some benefit in terms of eliciting better clinical responses. The research team believes that result occurs through the activation of BDNF and its downstream signaling pathways in populations of patients who exhibit low telomerase activity.

Effect of electronic stimulation at Neiguan (PC 6) acupoint on gene expression of adenosine triphosphate-sensitive potassium channel and protein kinases in rats with myocardial ischemia.

<http://www.ncbi.nlm.nih.gov/pubmed/26591689>

J Tradit Chin Med. 2015 Oct;35(5):577-82

By Wang W

Abstract

OBJECTIVE:

To investigate the effects of electronic stimulation at acupoints Neiguan (PC 6) and Lieque (LU 7) on the gene expression of the adenosine triphosphate (ATP)-Sensitive potassium channel (KATP: Kir6.1, Kir6.2, SUR2A, and SUR2B) and protein kinases (PKA, PKG, and PKC β 2) in myocardial cells of rats with myocardial ischemia (MI) induced by isoproterenol (ISO).

METHODS:

Rats were randomly divided into a control, model, Neiguan (PC 6), Lieque (LU 7), and non-acupoint groups. The MI model was established by injecting rats with ISO. Electroacupuncture treatment was given to the acupuncture groups, once a day for 7 days. Gene expression was analyzed with real-time PCR.

RESULTS:

The gene expression of KATP and protein kinases in the model group was higher than those in the control group ($P < 0.05$). After acupuncture treatment, the KATP and protein kinase expression levels were significantly lower in the Neiguan (PC 6) and Lieque (LU 7) groups compared with the model group ($P < 0.05$). The Neiguan (PC 6) group lowered these levels significantly more than that of the Lieque (LU 7) group ($P < 0.05$). No significant differences were observed between the model and non-acupoint groups ($P > 0.05$).

CONCLUSION:

Our findings suggest that electronic needling of Neiguan (PC 6) can both reduce the gene expression of KATP and protein kinases in rats with ISO-induced MI.

Effect of acupuncture at Neiguan (PC 6) on cardiac function using echocardiography in myocardial ischemia rats induced by isoproterenol.

<http://www.ncbi.nlm.nih.gov/pubmed/26742310>

J Tradit Chin Med. 2015;35(6):653-8.

By Wang S

Abstract

OBJECTIVE:

To investigate the effect of acupuncture at Neiguan (PC 6) on cardiac function using echocardiography in rat models of myocardial ischemia (MI) induced by isoproterenol (ISO).

METHODS:

Twenty-seven Sprague-Dawley rats were randomly assigned to normal, model, and acupuncture groups. The model and acupuncture groups were given injections of ISO (85 mg/kg) to establish the MI model. After model establishment, the acupuncture group was treated with acupuncture at Neiguan (PC 6) for 30 min. Echocardiography was used to monitor diastolic and systolic function for 30 min starting

from the time after the acupuncture needles were removed. Changes in the length of left ventricular internal diameter at end-diastole (LVIDd), length of left ventricular internal diameter at end-systole (LVIDs), the ratio of mitral peak velocity at early diastole and atrial contraction (E/A), ejection fraction (EF), fractional shortening (FS), and stroke volume (SV) were measured.

RESULTS:

Compared with the model group at 0 and 15 min after needles were removed, the means of LVIDd and LVIDs were significantly lower ($P < 0.01$) and E/A, EF, FS, and SV significantly higher (P

< 0.01) in the acupuncture group. In the acupuncture group, the means of LVIDd and LVIDs 15 min after the needles were removed were significantly higher ($P < 0.01$) than those at 0 min. The means of E/A, EF, FS, and SV significantly decreased ($P < 0.01$) from 0 to 15 min in the acupuncture group.

CONCLUSION:

These findings indicate that acupuncture at Neiguan (PC 6) can affect cardiac function by increasing left ventricular diastolic and systolic function in MI rat models, but the effect only lasts for 15 min.

Acupuncture for Parkinson's Disease: a review of clinical, animal, and functional Magnetic Resonance Imaging studies.

<http://www.ncbi.nlm.nih.gov/pubmed/26742319>

J Tradit Chin Med. 2015 Dec;35(6):709-17

By Xiao D.

Abstract

Acupuncture has been commonly used as an adjuvant therapy or monotherapy in the treatment of Parkinson's disease in China and in other countries. Animal studies have consistently show that this treatment is both neuroprotective, protecting dopaminergic neurons from degeneration and also restorative, restoring tyrosine hydroxylase positive dopaminergic terminals in striatum, resulting in improvements in motor performance in animal models of Parkinsonism. Studies show that this protection is mediated through the same common mechanisms as other neuroprotective agents, including anti-oxidative stress, anti-inflammatory and anti-

apoptotic pathways at molecular and cellular levels. Restoration of function seems to involve activation of certain compensatory brain regions as a mechanism at the network level to correct the imbalances to the nervous system resulting from loss of dopaminergic neurons in substantia nigra. Clinical studies in China and Korea, in particular, have shown a positive benefit of acupuncture in treating Parkinson's disease, especially in reducing the doses of dopaminergic medications and the associated side effects. However, large and well-controlled clinical trials are still needed to further demonstrate the efficacy and effectiveness of acupuncture in the treatment of Parkinson's disease.

Acupuncture to Reduce Sleep Disturbances in Perimenopausal and Postmenopausal Women: A Systematic Review and Meta-analysis.

<http://www.ncbi.nlm.nih.gov/pubmed/26855097>

Obstet Gynecol. 2016; 127(3):507-15.

By Chiu HY

Abstract

OBJECTIVE:

To examine the association of acupuncture with sleep disturbances and serum sex hormone levels in perimenopausal and postmenopausal women and whether there are associated changes in sex hormone levels.

DATA SOURCES:

We systematically searched electronic databases (EMBASE, PubMed, PsycINFO, CINAHL, ClinicalTrials.gov, Wanfang Data Chinese Database, and China Knowledge Resource Integrated Database) and the reference lists of the identified studies.

METHODS OF STUDY SELECTION:

Randomized controlled trials that examined the effects of acupuncture on sleep disturbances in perimenopausal and postmenopausal women were included. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis statement was followed.

TABULATION, INTEGRATION, AND RESULTS:

We identified 31 randomized controlled trials with 34 effect sizes involving a total of 2,433

participants. Acupuncture is associated with a significant reduction in the likelihood of sleep disturbances (odds ratio [OR] 0.21, 95% confidence interval [CI] 0.14-0.31), a significant increase in the secretion of serum estradiol (pooled difference in means 7.56 pg/mL, 95% CI 4.03-11.08), and reduction in the secretion of serum follicle-stimulating hormone (-6.75 milli-international units/mL, 95% CI -12.16 to -1.34) and luteinizing hormone (-2.71 milli-international units/mL, 95% CI -4.22 to -1.20). Studies with a large effect size of acupuncture-associated changes in serum estradiol had a significantly lower odds of sleep disturbances than did those with a small-to-moderate effect sizes (ORs 0.07 and 0.36, $P=.02$).

CONCLUSION:

Acupuncture is associated with a significant reduction in sleep disturbances in women experiencing menopause-related sleep disturbances. Our findings suggest that acupuncture should be adopted as part of a multimodal approach for improving sleep disturbances in perimenopausal and postmenopausal women.

Systematic Review of Acupuncture for Chronic Prostatitis/Chronic Pelvic Pain Syndrome.

<http://www.ncbi.nlm.nih.gov/pubmed/26986148>

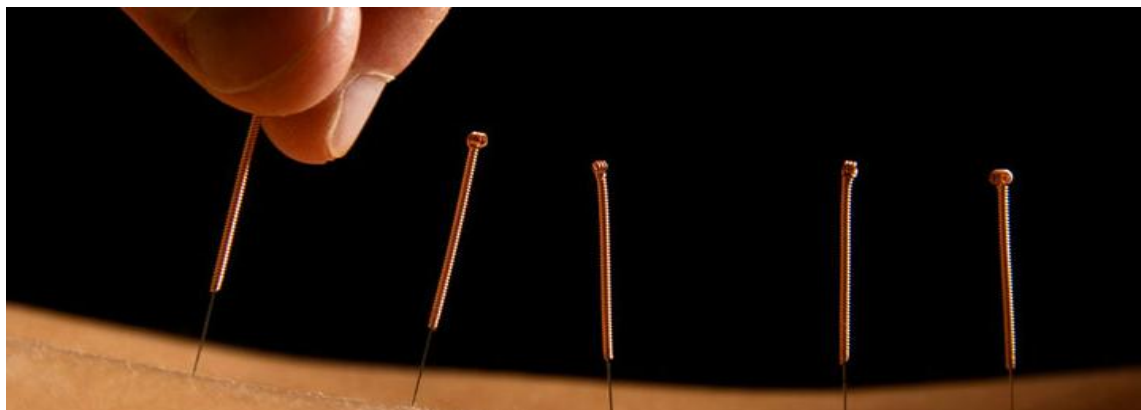
Medicine (Baltimore).2016; 95(11):e3095

By Qin Z

Abstract

Acupuncture is a promising therapy for relieving symptoms in chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS), which affects >15% of adult men worldwide. The aim of the study was to assess the effects and safety of the use of acupuncture for CP/CPPS. MEDLINE, EMBASE, CENTRAL, Web of Science, CBM, CNKI, Wang-Fang Database, JCRM, and CiNii were searched from their inception through 30 November 2015. Grey literature databases and websites were also searched. No language limits were applied. Only randomized controlled trials (RCTs) with CP/CPPS treated by acupuncture were included. Two reviewers extracted data and assessed the risk of bias of RCTs using the Cochrane Risk of Bias Tools, respectively. Seven trials were included, involving 471 participants. The result of meta-analysis indicated that compared with sham acupuncture (MD: -6.09 [95%CI: -8.12 to -5.68]) and medicine (Levofloxacinand, Ibuprofen, and Tamsulosin) (MD: -4.57 [95%CI: -7.58 to -1.56]), acupuncture was more effective at

decreasing the total NIH-CPSI score. Real acupuncture was superior to sham acupuncture in improving symptoms (pain, voiding) and quality of life (Qof) domain subscores. Compared to sham acupuncture and medicine, acupuncture appears to be more effective at improving the global assessment. Two trials found that there is no significant difference between acupuncture and sham acupuncture in decreasing the IPSS score. Acupuncture failed to show more favorable effects in improving both symptoms and the Qof domain compared with medicine. Overall, current evidence supports acupuncture as an effective treatment for CP/CPPS-induced symptoms, particularly in relieving pain. Based on the meta-analysis, acupuncture is superior to sham acupuncture in improving symptoms and Qof. Acupuncture might be similar to medicine (Levofloxacinand, Ibuprofen, and Tamsulosin) in its long-term effects, but evidence was limited due to high ROB among included trials as well as potential heterogeneity. Acupuncture is associated with rare and slightly adverse events



Nonpharmacologic Versus Pharmacologic Treatment of Adult Patients With Major Depressive Disorder: A Clinical Practice Guideline From the American College of Physicians.

<http://www.ncbi.nlm.nih.gov/pubmed/26857948>

Ann Intern Med. 2016; 164(5):350-9.

By Qaseem A

Abstract

DESCRIPTION:

The American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on the comparative effectiveness of treatment with second-generation antidepressants versus nonpharmacologic treatments for major depressive disorder in adults.

METHODS:

This guideline is based on a systematic review of published, English-language, randomized, controlled trials from 1990 through September 2015 identified using several databases and through hand searches of references of relevant studies. Interventions evaluated include psychotherapies, complementary and alternative medicines (including acupuncture, ω -3 fatty acids,

S-adenosyl-l-methionine, St. John's wort [*Hypericum perforatum*]), exercise, and second-generation antidepressants. Evaluated outcomes included response, remission, functional capacity, quality of life, reduction of suicidality or hospitalizations, and harms. The target audience for this guideline includes all clinicians, and the target patient population includes adults with major depressive disorder. This guideline grades the evidence and recommendations using ACP's clinical practice guidelines grading system.

RECOMMENDATION:

ACP recommends that clinicians select between either cognitive behavioral therapy or second-generation antidepressants to treat patients with major depressive disorder after discussing treatment effects, adverse effect profiles, cost, accessibility, and preferences with the patient

Role of transient receptor potential vanilloid subtype 1 in the increase of thermal pain threshold by moxibustion.

<http://www.ncbi.nlm.nih.gov/pubmed/26591690>

J Tradit Chin Med. 2015; 35(5):583-7.

By Li J.

Abstract

OBJECTIVE: To explore the role of transient receptor potential vanilloid subtype 1 (TRPV1) in the increase of the thermal pain threshold by moxibustion.

METHODS:

Forty Kunming mice (20 ± 2) g were randomized into control group, capsaicin group, capsazepine group, moxibustion group and moxibustion +

capsazepine (MC) group with 8 mice in each, and 16 C57BL/6 wild-type mice (18 ± 2) g were randomized into wild-type (WT) control group and WT moxibustion group with 8 mice in each, and 14 TRPV1 knockout mice (18 ± 2) g were randomized into knockout (KO) control group and KO moxibustion-group with 7 in each. Each mouse in the capsaicin group was subcutaneously injected with the amount of 0.1 mL/10 g into L5

and L6 spinal cords; each mouse in the capsazepine group was intraperitoneally injected with the amount of 0.1 mL/10 g. Similarly, each mouse in the moxibustion group was given a suspended moxibustion with specially-made moxa-stick for 20 min on L5 and L6 spinal cords. Each mouse in MC group was intraperitoneally injected with the amount of 0.1 mL/10 g first, then after 15 min was given a suspended moxibustion for 20 min on L5 and L6 spinal cords. Each mouse in WT moxibustion group and KO moxibustion group was given a suspended moxibustion with specially-made moxa-stick for 20 min on L5 and L6 spinal cords. The control group, WT control group and KO control group were of no treatment in any way. After all treatments were completed, the digital-display measurement instrument for thermal pain was used to measure the threshold of thermal pain in each group respectively.

RESULTS:

Compared with the control group, the thresholds of thermal pain in the moxibustion group and MC group were significantly increased ($P < 0.01$); no significant changes in the thresholds in the capsaicin group and the capsazepine group ($P > 0.05$); compared with moxibustion group, the threshold of thermal in MC group was obviously decreased ($P < 0.01$). Compared with WT control group, the threshold of thermal pain in WT moxibustion group was significantly increased ($P < 0.01$); compared with KO control group, no changes in the threshold in KO moxibustion group ($P > 0.05$).

CONCLUSION:

TRPV1 participated in the process of increasing the threshold of thermal pain by stimulating L5 and L6 of mice spinal cord with burning moxa-stick.

Acupoint Application for Asthma Therapy in Adults: A Systematic Review and Meta-Analysis of Randomized Controlled Trials.

<http://www.ncbi.nlm.nih.gov/pubmed/26978427>

Forsch Komplement med. 2016; 23(1):16-21

By Su L

Abstract

BACKGROUND:

To evaluate the evidence available on the effects of acupuncture point (acupoint) application for asthma therapy in adults.

METHODS:

Six electronic databases were searched up to May 2014 to identify relevant studies. Randomized controlled trials, which assessed the effects of acupoint application for asthma treatment in adults, were included in our review. The methodological quality of eligible studies was assessed by the Cochrane Collaboration's tool. The standardized mean difference (SMD) and 95%

confidence intervals (CI) of a random-effects

model were calculated. The heterogeneity was assessed using I² statistics.

RESULTS:

Eight studies were included in our review. The aggregated results indicated that acupoint application improved forced expiratory volume in 1 second (FEV1) (SMD, 0.32; 95% CI 0.04-0.60; $p = 0.03$), FEV1/forced vital capacity (SMD, 0.89; 95% CI 0.70-1.09; $p < 0.00001$), interleukin (SMD, -0.26; 95% CI -0.50 to -0.01; $p = 0.04$) and immunoglobulin E (SMD, -0.49; 95% CI -0.83 to -0.16; $p = 0.004$) in patients with asthma, but not eosinophilic cation protein (SMD, -0.58;

95% CI -1.42 to 0.26; $p = 0.18$). There was no sufficient evidence for the follow-up effects of acupoint application for asthma therapy in adults.

CONCLUSIONS:

Acupoint application may be a valid complementary and alternative therapy for

asthma in adults. It contributes especially to improving pulmonary function and reducing the levels of interleukin and immunoglobulin E. However, more studies with longer follow-ups are warranted to confirm the current findings.

Effects of Acupuncture in Anesthesia for Craniotomy: A Meta-Analysis.

<http://www.ncbi.nlm.nih.gov/pubmed/26967459>

J Neurosurg Anesthesiol. 2016 Mar 10

By Asmussen S

Abstract

BACKGROUND:

Acupuncture treatment has been used in China for >2500 years, and at present it is used worldwide as a form of analgesia in patients with acute and chronic pain. Furthermore, acupuncture is regularly used not only as a single anesthetic technique but also as a supplement or in addition to general anesthesia (GA).

OBJECTIVES:

The aim of this systematic review and meta-analysis was to assess the level of evidence for the clinical use of acupuncture in addition to GA in patients undergoing craniotomy.

DESIGN:

This is a systematic review of randomized controlled trials with meta-analyses.

DATA SOURCES:

The literature search (PubMed, Cochrane Library, and Web of Science) yielded 56 citations, published between 1972 and March 01, 2015. No systematic review or meta-analyses on this topic matched our search criteria. Each article of any language was assessed and rated for the methodological quality of the studies, using the recommendation of the Oxford Centre for Evidence Based Medicine. Ten prospective randomized controlled clinical trials with a total of 700 patients were included.

ELIGIBILITY CRITERIA:

Included in the meta-analysis were studies that involved any craniotomy under GA compared with a combination of GA and acupuncture. Exclusion criteria were no acupuncture during surgery, no GA during surgery, only postoperative data available, animal studies, and low grade of evidence.

RESULTS:

The use of acupuncture significantly reduced the amount of volatile anesthetics during surgery ($P < 0.001$) and led to faster extubation time ($P = 0.001$) and postoperative patient recovery ($P = 0.003$). In addition, significantly reduced blood levels of the brain tissue injury marker S100 β 48 hours after operation ($P = 0.001$) and occurrence of postoperative nausea and vomiting ($P = 0.017$) were observed. No patient studied suffered from awareness.

CONCLUSIONS:

The analysis suggests that the complementary use of acupuncture for craniotomy has additional analgesic effects, reduces the needed amount of volatile anesthetic, reduces the onset of postoperative nausea and vomiting, and might have protective effects on brain tissue. Our findings may stimulate future randomized controlled trials to provide definitive recommendations.