MEDICAL ACUPUNCTURE
Volume 28, Number 3, 2016

DOI: 10.1089/acu.2016.29021.lit

Abstracts and Commentaries on Key Articles in the Literature

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Acupuncture to reduce sleep disturbances in perimenopausal and postmenopausal women: a systematic review and meta-analysis.

Chiu HY, Hsieh YJ, Tsai PS. *Obstet Gynecol.* 2016;127(3):507–515.

Chiu, Hsieh, and Tsai, from Taipei, Taiwan, examined the association of acupuncture with sleep disturbances and serum sex-hormone levels in perimenopausal and postmenopausal women. The researchers were also interested in potential associated changes in sex-hormone levels. The authors of the study performed a literature search in the following electronic databases: EMBASE; PubMed; PsycINFO; CINAHL, ClinicalTrials.gov; Wanfang Data Chinese Database; and China Knowledge Resource Integrated Database. The authors also searched the reference lists of the identified studies systematically. Chiu et al. included randomized controlled trials (RCTs) designed to examine the effects of acupuncture on sleep disturbances in perimenopausal and postmenopausal women. Thirty-one RCTs with 34 effect sizes involving a total of 2433 participants were identified.

The authors stated that acupuncture was 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).

The result of the analysis was as follows: Studies with large effect sizes of acupuncture-associated changes in serum estradiol had significantly lower odds of sleep disturbances than did those studies with small-to-moderate effect sizes (ORs: 0.07 and 0.36; $P = 0.02$). Chiu et al. concluded that acupuncture was associated with a significant reduction in sleep disturbances in women experiencing menopause-related sleep disturbances. The findings of the studies suggested that acupuncture should be adopted as part of a multimodal approach for reducing sleep disturbances in perimenopausal and postmenopausal women.

Anti-inflammatory effect of laser acupuncture in ST36 (*Zusanli*) acupoint in mouse paw edema.

Erthal V, Maria-Ferreira D, Werner MF, Baggio CH, Nohama P. *Lasers Med Sci.* 2016;31(2):315–322.

Erthal et al., from Curitiba, Brazil, wrote an article about low-level laser therapy (LLLT) in acupuncture. This is a low-power laser applied to acupoints for providing luminous energy, capable of producing photobiologic induction that results in biochemical, bioelectric, and bioenergetic effects. *Zusanli* (ST 36) is an acupuncture point commonly used to treat several pathologic conditions, such as inflammation, acute pain, and gastrointestinal disorders. In this animal experimental study, the authors evaluated the anti-inflammatory effect of LLLT (830 nm, 4 J/cm^2) in ST 36 acupoint through the model of carrageenan-induced paw edema in mice and the possible mechanisms involved. Female Swiss mice were treated with LLLT in ST 36 before the paw edema induction, which was measured with a digital micrometer, and paw temperatures were observed through a high-resolution digital thermograph. After this, some parameters—such as the levels of reactive oxygen species (ROS), lipid hydroperoxides (LOOH), and reduced glutathione (GSH)—were quantified.

In another set of experiments, paw edema was induced by bradykinin, histamine, and prostaglandin E_2 (PGE_2). LLLT in ST 36 acupoint inhibited edema formation significantly for 4 hours after carrageenan injection and reduced paw temperature by 10%. Furthermore, the researchers stated that LLLT also reduced levels of ROS (55%) and LOOH (50%), but did not alter GSH levels. LLLT in ST 36 reduced paw edema induced by bradykinin (30 minutes, 6%; 60 minutes, 7%), histamine (30 minutes, 11%), and PGE_2 (90 minutes, 10%; 120 minutes, 16%). Erthal et al. concluded that these results proved that LLLT in the ST 36 acupoint produces a relevant anti-inflammatory effect, reducing edema, temperature, and free-radical levels in mice paws.

Acupuncture in the treatment of tinnitus: a systematic review and meta-analysis.

Liu F, Han X, Li Y, Yu S. *Eur Arch Otorhinolaryngol.* 2016; 273(2):285–294.

FIVE ELECTRONIC DATABASES, in the English and Chinese languages, were searched for this study. It was a systematic review and meta-analysis by Liu et al., of all available randomized controlled trials (RCTs) using acupuncture to treat tinnitus. The reviewed and analyzed studies included parallel RCTs of patients with tinnitus that compared subjects receiving acupuncture (including forms such as electroacupuncture) to subjects receiving no treatment, sham treatment, pharmaceutical agents, or basic medical therapy. A very interesting fact that emerged from this study was that nearly all Chinese studies reported positive results, while most English studies reported negative results.

Analysis of the combined data revealed that the acupuncture treatments seemed to provide some advantages over conventional therapies for tinnitus. Differences were found in acupuncture points and sessions between Chinese and English studies. Methodological flaws were also found in many of the RCTs, especially in the Chinese studies. Liu et al. stated that the results of their review suggested that acupuncture therapy might offer subjective benefit to some patients who have tinnitus. Acupuncture points and sessions used in Chinese studies might be more appropriate but these studies have many methodological flaws and risk biases, according to the reviewers, which prevented them from arriving at a definitive conclusion.

Pulse changes in patients with cervical spondylosis before and after acupuncture treatment.

Zhang H, Guo M, Lu X. *J Tradit Chin Med.* 2016;36(1):63–70.

THE OBJECTIVE OF THIS STUDY, conducted by Chinese scientists, was to investigate changes in pulse-diagram parameters (PDPs) in patients with cervical spondylosis (CS) before and after acupuncture treatments. The scientists also explored the characteristics of PDP, and the relationship between PDP changes and therapeutic effectiveness. Another goal of the study was to provide evidence for outcome prediction and objective evaluation of CS treatment before and after acupuncture treatment.

The following method was applied: Patients with CS were treated with acupuncture and measured with a pulse-acquisition device based on images (Performance Anomaly Detection and Bottleneck Identification [PADBI]) taken before the first and after the tenth acupuncture sessions. To judge the effect of the acupuncture treatment, changes in PDP from before until after the acupuncture sessions were analyzed. In addition, the patients' impressions were analyzed. The results of the study were the following: in patients for whom the acupuncture treatment was effective, PDP values were closer to normal values. The authors stated that this indicated that Qi Stagnation and Blood Stasis of these patients were reduced. Zhang et al. also learned that the PDP changes from before to after the first acupuncture treatment were more obvious than those from before to after the tenth acupuncture treatment. The researchers stated that this result indicated that the speed of symptom reduction decreased significantly after several courses of acupuncture.

Analysis of correlations between efficacy and PDP showed that the changes in PDP in 5 patients were abnormal—which mainly manifested as values of h1, u, p, Pp, and t1—and no significant changes or differences were increased in patients who had standard values. This indicated that the symptoms of CS were not reduced in these patients. Zhang, Guo, and Lu concluded that PADBI could provide evidence for outcome prediction of acupuncture treatment in patients with CS. PADBI can also provide evidence for objective evaluation of acupuncture treatment for CS.

A new method in auricular medicine for the investigation of the Nogier reflex.

Litscher G, Bahr F, Litscher D, Min L-Q, Rong P-J. *Integr Med Int.* 2014;1(4):205–210.

THIS STUDY WAS CONDUCTED by researchers from different institutions in Graz, Austria; Munich, Germany; and Beijing, China. The focus of this study was the Nogier reflex or *reflex auriculocardiac* (RAC; also known as vascular autonomic signal). Although there is, as of yet, no scientific consensus on this topic, it is an important signal in auricular medicine. This article by Litscher et al. introduces a new methodological approach for detecting and quantifying the RAC. To quantify the RAC reproducibly for the first time, a new high-resolution imaging technique for registering pulsatory surface changes was used. This method combines an innovative microscope system (available at the Medical University of Graz), video-analysis software, and special image-processing software (from the Beijing University of Science and Technology).

The researchers learned that even small, pulse-dependent alterations of the skin surface could be visualized clearly. The conclusion of the study was that the pilot measurement confirmed the validity of the new methodological approach. Further investigations are necessary and are in progress.

The effects of acupuncture on cerebral blood flow in post-stroke patients: a randomized controlled trial.

Ratmansky M, Levy A, Messinger A, Birg A, Front L, Treger I. *J Altern Complement Med.* 2016;22(1):33–37.

Researchers from different institutions in Israel performed this study. In the Western world, stroke is a major cause of disability and death. Studies have shown a direct relationship between specific mental and motor activity, and changes in the cerebral blood flow. The authors of this pilot concept–assessment study stated that acupuncture is often used in patients poststroke, but there exists a lack of sham-controlled studies evaluating the effects of acupuncture on cerebral blood flow following a stroke. The objective of this study was to evaluate the effects of true acupuncture on cerebral blood flow velocity, compared with sham acupuncture, and lay a foundation for future work in this field.

Seventeen patients (1–3 months poststroke) were allocated to acupuncture at true acupuncture (TA) points or at sham acupuncture (SA) points. The treatment was 20 minutes long. The researchers used transcranial Doppler ultrasonography to measure mean flow velocity (MFV) and peak flow velocity (PFV) at both healthy and damaged hemispheres before (T0), in the middle of (T15), and 5 minutes after (T25) treatment. Blood pressure (BP) was measured at T0 and T25.

A statistically significant ($P < 0.04$) MFV increase in both hemispheres was found during and after TA. This increase was higher than that seen with SA ($P < 0.035$). Acupuncture had no significant effect on PFV. Systolic BP significantly decreased after acupuncture ($P < 0.005$) in a similar manner for both TA and SA. National Institutes of Health Stroke Scale score was negatively correlated with MFV at T15 ($r = -0.825$; $P < 0.05$). Ratmansky et al. concluded that this pilot study showed a significant influence on cerebral blood flow velocity by TA. This study lays a foundation for larger-scale studies that might prove acupuncture to be a useful tool for cerebral blood flow enhancement during poststroke rehabilitation.

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