Abstracts and Commentaries on Key Articles in the Literature

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Magnetic noninvasive acupuncture for infant comfort (MAGNIFIC)—a single-blinded randomised controlled pilot trial.

Chen KL, Lindrea KB, Quah-Smith I, Schmölzer GM, Daly M, Schindler T, Oei JL. *Acta Paediatr.* 2017;106(11):1780–1786.

THE AIM OF THIS STUDY, PERFORMED BY RESEARCHERS from Australia and Canada, was to determine the safety and feasibility of auricular noninvasive magnetic acupuncture (MA) to decrease infant pain during heel pricks.

Infants requiring heel pricks for blood collection were randomized to either MA ($n=21$) or placebo ($P; n=19$) after parental informed consent. MA or placebo stickers were placed on both ears according to the Battlefield Protocol by an unblinded investigator and left on for 3 days. Pain was assessed with the Premature Infant Pain Profile (PIPP) by blinded clinicians.

The results of the study were the following: Mean gestation (MA: 34.1 weeks; P : 34.4 weeks) and age of infants (MA: 5.3 days; P : 4.5 days) were similar as were mean (standard deviation [SD]) pre (MA: 1.7 [1.4]; P : 2.1 [1.9]) and post (MA: 1.6 [1.4]; P : 2.1 [1.7]) heel prick PIPP scores. PIPP scores were significantly lower in MA infants during heel pricks (MA: 5.9 [3.7]; P : 8.3 [4.7]; $P=0.04$). One-way analysis of covariance modeling showed that MA was significantly associated with lower PIPP scores after controlling for analgesic use ($P=0.043$). No differences in heart rate, oxygen saturation, analgesic use, or adverse effects (e.g., local skin reactions) were noted. This pilot study shows that auricular MA is feasible in neonates and can reduce PIPP scores during heel pricks. Further study is required to determine the impact of MA on other painful or stressful conditions and on neurodevelopment.

Enhanced therapeutic treatment of colorectal cancer using surface-modified nanoporous acupuncture needles.

Lee BR, Kim HR, Choi ES, et al. *Sci Rep.* 2017;7(1):12900.

THIS STUDY WAS PERFORMED BY RESEARCHERS mainly from the Republic of Korea. Acupuncture originated within the auspices of Oriental medicine, and, today, is used as an alternative method for treating various diseases and symptoms. The physiologic mechanisms of acupuncture appear to involve the release of endogenous opiates and neurotransmitters, with the signals mediated through electrical stimulation of the central nervous system. Earlier this group of researchers wrote about a nanoporous-stainless steel acupuncture needle with enhanced therapeutic properties that was evaluated by examining electrophysiologic and behavioral responses in Sprague-Dawley rats. In the current study, the researchers investigated molecular changes in rats with colorectal cancer (CRC) as a result of acupuncture treatment using the nanoporous needles. Treatment at acupoint HT 7 was found most effective for reducing average tumor size, β -catenin expression levels, and the number of aberrant crypt foci in the colon endothelium. Surface modification of acupuncture needles enhanced the therapeutic effects of acupuncture treatment in rats with CRC further.

The long-term effect of acupuncture for patients with chronic tension-type headache: study protocol for a randomized controlled trial.

Lu LY, Zheng H, Zheng QH, et al. *Trials.* 2017;18(1):453.

THE EFFECTIVENESS OF ACUPUNCTURE FOR PATIENTS with chronic tension-type headache (CTTH) is controversial. In this article, the authors reported the protocol for a randomized controlled trial (RCT) for evaluating the long-term effect of acupuncture on CTTH, in comparison with superficial acupuncture. A two-armed, parallel-design, patient-assessor blind RCT is underway in China. A total of 218 participants with CTTH will be randomly assigned to the treatment group or the control group in a 1:1 ratio. Participants in the treatment group and the control group will receive acupuncture or superficial acupuncture treatments in a fixed prescription of acupoints, respectively, for a total of 20 sessions over 8 weeks. The post-treatment follow-up period will be 24 weeks.

The primary outcome will be the proportion of responders assessed at week 16 after randomization. The secondary outcomes will include the number of headache days, the mean intensity of headache, the reduction of medication intake, results from the 36-item Short Form—Health Survey, the Hamilton Depression Scale, the Hamilton Anxiety Scale, the number of participants with adverse events, the expectation value of acupuncture treatment, and the intensity of De Qi sensation. The first five secondary outcomes will be assessed or calculated at baseline, and at 4, 8, 12, 16, 20, 24, 28, and 32 weeks after randomization. Moreover, the expectation value will be collected at baseline and at week 8 after randomization, the intensity of De Qi sensation will be assessed at 5 minutes after each treatment, and adverse events will be summarized at the end of the follow-up period. Results from this trial will provide evidence for the long-term effect of acupuncture for CTTH with a long follow-up period.

Is supplemental ear acupuncture for surgical tooth removal with local anesthesia effective?: A pilot study [in German].

Lux EA, Wahl G, Erlenwein J, Wiese C, Wirz S. *Schmerz*. 2017; March 17:e-pub ahead of print.

FIVE RESEARCHERS FROM GERMANY performed this pilot study. The application of ear acupuncture can contribute to a reduction of acute pain. Data on the application of ear acupuncture following oral surgery in odontology is insufficient. This study investigated the effectiveness of ear acupuncture as an auxiliary analgesic treatment in addition to local anesthesia for operative tooth removal.

In this prospective, open, nonrandomized pilot study (in accordance with the Consolidated Standards of Reporting Trials publication), 2 cohorts of 50 patients each with the indications for an operative tooth removal either with or without the application of ear acupuncture in addition to local anesthesia with articaine were observed. Patients were allocated to the groups according to their preference.

Pain intensity while resting and while chewing was recorded as the primary parameter for a period of 10 days. The secondary parameters were the subjective experience of anxiety and symptoms, such as headaches, dizziness, and nausea. The 2 groups did not differ significantly with respect to demographic variables or the use of local anesthetics. At the various measurement intervals, pain intensity while resting or chewing differed significantly between the 2 groups (analysis of variance [ANOVA]; $P=0.004$; $P=0.007$, respectively). Furthermore, the experience of anxiety (ANOVA; $P=0.0001$), the number of patients taking analgesics (χ^2 -test; $P=0.017$), and the total postoperative consumption of analgesics (t -test, 0.001) had significant differences. In both groups, the numerical rating scale results for postoperative headaches, dizziness, and nausea were low.

Despite a potential bias and methodological limitations of the study design, the results of this investigation suggest

that ear acupuncture influences the experience of pain and anxiety in the postoperative period after tooth removal. As a treatment method with low adverse effects, ear acupuncture can contribute to postoperative pain control, especially in patients with preoperative anxiety.

Emesis in patients receiving acupuncture, sham acupuncture or standard care during chemo-radiation: a randomized controlled study.

Widgren Y, Enblom A. *Complement Ther Med*. 2017;34:16–25.

THE OBJECTIVE OF THE SWEDISH RESEARCHERS, who conducted this trial, was to study nausea, vomiting, and need for rescue antiemetics in patients receiving antiemetic acupuncture, sham acupuncture, or standard care during concomitant chemotherapy during pelvic radiotherapy.

In total, 68 patients participated (75% women; mean age 56 years; 53% had gynecologic, 43% colorectal, and 4% other cancer types). Fifty-seven of the patients were blinded and randomized to verum ($n=28$) or sham ($n=29$) acupuncture, and there was a median of 10 sessions. During the study period of 4 weeks, the patients registered their nausea, vomiting, and consumption of antiemetics daily. These patients were compared to a reference group ($n=11$) receiving standard care only, who delivered these data once (after receiving a mean 27 Gy radiotherapy dose). More patients in the sham acupuncture group (17 of 20; 85%; $P=0.019$; relative risk [RR]: 1.81; confidence interval [CI]: 1.06–3.09) consumed antiemetics, compared to the verum acupuncture group (8 of 17; 47%). In the standard care group, 7 of 11 (63%) consumed antiemetics. The verum acupuncture-treated patients experienced a lower intensity of nausea than the other patients ($P=0.049$). There was a non-significant tendency that more patients receiving either sham acupuncture or standard care experienced nausea (21 of 31; 68%) than patients receiving verum acupuncture (9 of 17; 53%; $P=0.074$; RR: 1.58; CI: 0.91–2.74).

This was the conclusion of the Swedish authors: Patients treated with verum acupuncture needed fewer antiemetics and experienced milder nausea than other patients. The study was small, and many analyses lacked statistical power to detect differences. Further sham-controlled efficacy studies and studies regarding the role of nonspecific treatment components for experiencing antiemetic effects of acupuncture are necessary.

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