Abstracts and Commentaries on Key Articles in the Literature

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An economic evaluation of Alexander Technique lessons or acupuncture sessions for patients with chronic neck pain: a randomized trial (ATLAS).

Essex H, Parrott S, Atkin K, et al. *PLoS One*. 2017;12(12):e0178918.

THE OBJECTIVE OF THIS STUDY was to assess the cost-effectiveness of acupuncture and usual care, and Alexander Technique lessons and usual care, compared with usual general practitioner (GP) care alone for patients with chronic neck pain. An economic evaluation was performed as well as the ATLAS trial, including both U.K. National Health Service and wider societal viewpoints. Participants were offered up to 12 acupuncture sessions or 20 Alexander lessons (equivalent overall contact time). Effectiveness was measured using the generic EuroQual-5D to calculate quality-adjusted life-years (QALYs), as well as using the Northwick Park Neck Pain Questionnaire, which is a specific pain measure.

The researchers concluded that, in comparison with usual care, acupuncture is likely to be cost-effective for treating chronic neck pain, whereas, largely due to higher intervention costs, Alexander Technique lessons are unlikely to be cost-effective. However, there were high levels of missing data, and further research is needed to assess the long-term cost-effectiveness of these interventions.

Auricular acupuncture versus cognitive behavioural therapy in the discontinuation of hypnotic drug usage, and treatment effects on anxiety, depression and insomnia symptoms—a randomised controlled study.

Bergdahl L, Broman J-E, Berman AH, Haglund K, von Knorring L, Markstrom A. *Eur J Integr Med*. 2017;16:15–21.

INTEREST IN NONPHARMACOLOGIC INTERVENTIONS for insomnia disorder has increased. The goal of this prospective randomized controlled study was to assess the immediate treatment effects of auricular acupuncture (AA) and cognitive-behavioral therapy for insomnia (CBT-i) with respect to discontinuation of usage of hypnotics, and reduction of symptoms of anxiety, depression, and insomnia. There were

57 participants (mean age: 61 [standard deviation: 8.6]) with insomnia disorder and long-term use of nonbenzodiazepine hypnotics. The patients received group-treatment with AA or CBT-i. Pre- and post-treatment measures included symptoms of anxiety, depression, and insomnia which were assessed with the following self-report questionnaires: the Hospital Anxiety and Depression scales (HAD-A, HAD-D); and the Insomnia Severity Index (ISI). Other sleep parameters and use of hypnotics were measured with a sleep diary. Linear mixed models were performed to examine the treatment effect over time within and between the groups.

Seventy-one percent of the AA participants and 84% of the CBT-i participants were able to discontinue their hypnotic drug consumption post-treatment. Symptoms of anxiety and depression decreased within the AA group (HAD-A, $P < 0.05$; HAD-D, $P < 0.05$) and insomnia symptoms decreased within the CBT-i group (ISI, $P < 0.001$). The only between-group difference occurred in ISI ($P < 0.001$) in favor of CBT-i. According to the within-group sleep diary results, the CBT-i group went to bed later ($P < 0.001$), fell asleep more quickly ($P < 0.05$), and increased their sleep efficiency ($P < 0.001$) and self-rated sleep quality ($P < 0.05$) post-treatment. Both groups ended/or maintained low use of hypnotic drugs post-treatment. Short-term reductions occurred in the AA group in anxiety and depression symptoms and in the CBT-i group regarding insomnia symptoms.

Acupuncture for the treatment of obesity in adults: a systematic review and meta-analysis.

Zhang RQ, Tan J, Li FY, Ma YH, Han LX, Yang XL. *Postgrad Med J*. 2017;93(1106):743–751.

RESearchers from China performed a meta-analysis to assess the clinical efficacy of acupuncture treatment for simple obesity and to provide evidence-based medical data for treating obesity with acupuncture. A comprehensive search of studies on MEDLINE,[®] EMBASE, the Cochrane Central Register of Controlled Trials, and Chinese databases (Wan Fang, CNKI, and VIP) from January 1, 1915 through November 30, 2015 (MEDLINE search updated through December 31, 2015) was performed. The researchers included only randomized

controlled trials (RCTs) that used verum acupuncture and sham acupuncture to treat simple obesity. The effect of acupuncture on simple obesity was measured using body mass index (BMI), body fat mass (BFM), waist circumference (WC), hip circumference (HC), and body weight (BW). A Jadad scale was used to assess methodological quality, a random-effects model was used in the pooled analysis to adjust for the heterogeneity of the included studies, and funnel plots were used to examine publication bias. The differences between treatment groups were reported as mean differences (MD).

Eleven RCTs were selected after all relevant literature from the electronic databases had been screened. There were totals of 338 and 305 participants in the verum acupuncture and sham acupuncture groups, respectively. Auricular and electroacupuncture were both able to reduce BMI in obese patients (MD: 0.47 kg/m²; 95% confidence interval [CI]: 0.35–0.58; $P < 0.001$; and MD: 0.50 kg/m²; 95% CI: 0.38–0.62; $P < 0.001$, respectively). BFM change after acupuncture treatment, compared with sham treatment, was statistically significant (MD: 0.66 kg, 95% CI: 0.51–0.80; $P < 0.001$). There were also significant differences in WC and HC between the verum acupuncture and sham acupuncture groups (MD_{WC}: 2.02 cm, 95% CI: 0.21–3.83; $P = 0.03$; MD_{HC}: 2.74 cm; 95% CI: 1.21–4.27; $P = 0.0004$). BW was not statistically significantly different between the verum acupuncture and sham acupuncture groups (MD: 0.60 kg; 95% CI: –0.20 to 1.39; $P = 0.14$). Begg's test and funnel plots showed that the potential publication bias of the included studies was very slight ($P > 0.05$).

The researchers concluded that acupuncture for simple obesity appeared to be an effective treatment, but more studies on the safety of acupuncture used to treat this condition are required.

Efficacy of femtosecond lasers for application of acupuncture therapy.

Ohta M, Hosokawa Y, Hatano N, Sugano A, Ito A, Takaoka Y. *Lasers Med Sci.* 2017;32(9):2167–2171.

THIS STUDY WAS CONDUCTED IN JAPAN. In the last decades, laser light has been used as an alternative to the needles used in acupuncture treatment to stimulate acupuncture points. The purpose of this current study was to investigate the efficacy of femtosecond laser (FL) irradiation in mouse skeletal muscle with respect to protein synthesis.

After irradiating the mice's hindlimbs, *Mstn* gene expression and *Mstn* protein level in the animals' skeletal muscle were analyzed. An evaluation was then conducted on phosphorylation of the mammalian target of rapamycin (mTOR) and its downstream target 70-kDa ribosomal protein S6 kinase (p70S6K).

FL irradiation significantly reduced the amount of *Mstn* protein and enhanced the phosphorylation of p70S6K in the mTOR/S6K signaling pathway. The researchers suggested that FL irradiation activated the protein synthetic pathway in the mice's skeletal muscles. The researchers concluded

that FL irradiation can serve as an alternative to acupuncture needles and has the potential of being a new noninvasive acupuncture treatment in skeletal muscle.

Acupuncture for cancer-related fatigue in lung cancer patients: A randomized, double blind, placebo-controlled pilot trial.

Cheng CS, Chen LY, Ning ZY, et al. *Support Care Cancer.* 2017;25(12):3807–3814.

CANCER-RELATED FATIGUE (CRF) is a distressing symptom that is the most common unpleasant side-effect experienced by patients with lung cancer, and this symptom is challenging for clinical care workers to manage.

Researchers performed a randomized, double-blinded, placebo-controlled pilot trial to evaluate the clinical effect of acupuncture on CRF in patients with lung cancer. Twenty-eight patients presenting with CRF were randomly assigned to active acupuncture or placebo acupuncture groups to receive acupoint stimulation (LI 4, Ren 6, ST 36, KI 3, and SP 6) twice per week for 4 weeks, followed by 2 weeks of follow-up. The primary outcome was the change in intensity of CFR based on the Chinese version of the Brief Fatigue Inventory (BFI-C). For the secondary endpoint, the Functional Assessment of Cancer Therapy-Lung Cancer Subscale (FACT-LCS) was used to assess the influence of acupuncture on patients' quality of life (QoL). Adverse events and safety of treatments were monitored throughout the trial.

This pilot study demonstrated feasibility among patients with appropriate inclusion criteria and good compliance with acupuncture treatment. A significant reduction in the BFI-C score was observed at 2 weeks in the 14 participants who received active acupuncture, compared with patients who received the placebo ($P < 0.01$). At week 6, symptoms were reduced further, according to the BFI-C ($P < 0.001$) and the FACT-LCS ($P = 0.002$) results. There were no significant differences in the incidence of adverse events in either group ($P > 0.05$).

Fatigue is a common symptom experienced by patients who have lung cancer. Acupuncture could be a safe and feasible optional method for adjunctive treatment in cancer palliative care. Appropriately powered trials are warranted to evaluate the effects of acupuncture in cancer palliative care.

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