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Aim of Investigation: Although acupuncture has been widely used as a therapeutic intervention, it is still unclear how acupuncture causes therapeutic effects. To clarify the acupuncture mechanism scientifically, it is required to observe the molecular event at the acupuncture point on the skin after acupuncture stimulation. The objective of this study is to find a correlation between local molecular changes in the skin layer after acupuncture stimulation and the therapeutic effects of acupuncture.

Methods: Acupuncture stimulation was performed on acupuncture point of C57BL/6 mice. Molecular changes in RNA level were analyzed using cDNA microarray 1 hour after the stimulation. In addition, molecular changes after acupuncture stimulation were analyzed using western blot and histological analyses in protein level. Then, the linking between analgesic effects of acupuncture and molecular changes in the skin layer was investigated using mouse pain model.

Results: In cDNA microarray, about 200 genes were changed compared to control group after acupuncture stimulation. In up-regulated genes, some pathways were mapped significantly. After acupuncture stimulation, molecular signals related to MAPK signaling pathway were increased, and we also obtained similar result in histological analysis. In mouse pain model, acupuncture stimulation attenuated nociceptive response, and this effect was partially blocked by MAPK inhibitor.

Conclusions: Molecular signals from acupuncture stimulation in skin layer seem to play an important role for the analgesic effects of acupuncture stimulation.

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ADJUVANT WHOLE SYSTEMS TRADITIONAL CHINESE MEDICINE IMPROVED FRESH, NON-DONOR IN VITRO FERTILIZATION – A RETROSPECTIVE CHART REVIEW

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Background: Surveys suggest in vitro fertilization (IVF) patients seek unproven adjuvant treatments to their IVF cycles, including whole systems traditional Chinese medicine (TCM). TCM treatment can include acupuncture, Chinese herbs, dietary and/or lifestyle recommendations, however research is needed to evaluate these components' effects on IVF live birth outcomes. In this study, live births were compared among IVF patients who (1) received usual care, (2) elected standardized acupuncture before and after embryo transfer (ET), or (3) elected TCM pre-treatment and acupuncture the day of ET.

Methods: Data from records of 1,069 fresh, non-donor cycles from a private infertility clinic were reviewed. The main outcome measure was live birth beyond 24 weeks gestation. Live births were compared among: (1) Usual Care group (UC) received no additional treatment (N=580); (2) Acupuncture (Acu) group elected

adjuvant acupuncture before and after ET (N=370); and (3) TCM group elected treatment prior to ET, which included acupuncture, Chinese herbs, dietary and/or lifestyle recommendations, and acupuncture on the day of ET (N=119). Outcomes were compared using logistic regression with covariates of FSH, age and number of embryos transferred.

Results: Live births were significantly higher in the TCM group (N=73, 61.3%) than the UC group (N=280, 48.3%, $p=0.01$) but not the Acu group (N=188, 50.8%, $p=0.39$). In the TCM group, the mean number of acupuncture visits prior to ET was 12.0 ± 12.4 (1 – 73). TCM with acupuncture on the day of ET was associated with a 73% increased odds of live birth than either UC or Acu alone (OR=1.73, 95% CI 1.16 – 2.60, $p=0.008$).

Conclusion: Whole systems TCM pre-treatment prior to ET and acupuncture on the day of ET significantly improved live births in fresh, non-donor IVF cycles. This preliminary finding should be taken cautiously as adequately powered, randomized controlled trials are necessary to confirm this observation.

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ALTERED BRAIN RESPONSE TO ACUPUNCTURE AFTER A COURSE OF ACUPUNCTURE THERAPY FOR CTS IS ASSOCIATED WITH ANALGESIA

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Carpal tunnel syndrome (CTS) is a common entrapment neuropathy. While brain response to acupuncture stimuli has been well characterized in healthy adults, the response in patients with chronic pain disorders such as CTS is less well understood. Moreover, how this response changes after a longitudinal course of acupuncture therapy and is related to clinical outcomes are also unknown. CTS patients (N=13, 8F) were evaluated with functional MRI (fMRI) during acupuncture stimulation at baseline and after 8 weeks of 16 acupuncture treatments. fMRI data were acquired using a gradient echo T2*-weighted pulse sequence on a 3.0T Siemens Trio. Electroacupuncture was applied at PC7 to TW5 on the affected forearm using an event-related design (2-sec stimulation with randomized ISI, 6–12 sec, total=5 min 6 sec). A paired t-test contrasted acupuncture response at baseline versus after a longitudinal course of therapy. Results were voxel threshold at $z > 2.3$, and cluster corrected for multiple comparisons at $p < 0.05$. Short-term pain reduction at the time of scan was evaluated with VAS (0–10), while long-term pain reduction after 8 weeks of therapy was evaluated with the Boston Carpal Tunnel Syndrome Questionnaire (BCTSQ, 1–5).

Acupuncture activated bilateral insulae, S2, ACC, thalamus and NRD/PAG, and deactivated ipsilateral S1 and MPFC. Activation in ACC was significantly greater after 8 weeks of therapy compared to baseline. Acupuncture produced short-term