INPLASY PROTOCOL

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None declared.

Effects of acupuncture on gastrointestinal function in enhanced recovery after surgery patients: a systematic review and meta-analysis of randomized controlled trials

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Review question / Objective: **P Human studies; I acupuncture including manual acupuncture or electroacupuncture (various needle techniques were accepted); C all the patients were all treated with ERAS strategy,the control group was sham acupuncture, waitlist control, usual care, or another intervention; O postoperative symptoms (postoperative oral feeding time, time to first flatus, time to first distension, PSRT, nausea, vomiting); S peer-reviewed prospective RCTs; L Articles written in English or Chinese.**
Condition being studied: **Enhanced recovery after surgery (ERAS) is a kind of new surgical strategy which is consisted of multimodal, multidisciplinary perioperative protocols aimed to achieve optimal patient outcomes. As numerous clinical trials have confirmed its effect in improving recovery after surgery, it is now incorporating most surgical subspecialties. Gastrointestinal functional disorders have long been a challenging clinical problem for both ERAS and conventional strategy patients. The treatments for gastrointestinal function recovery are limited to date and both patients and physicians are not very satisfied with the current treatments and want to seek more alternative treatments. Acupuncture has demonstrated definitely effectiveness for the recovery of gastrointestinal function and has been tried in some ERAS patients. This systematic review and meta-analysis aimed to assess the effects of acupuncture on gastrointestinal function recovery in ERAS patients and its rationality and necessity incorporating in ERAS strategy.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 30 November 2022 and was last updated on 30 November 2022 (registration number INPLASY2022110153).

INTRODUCTION

Review question / Objective: **P Human studies; I acupuncture including manual acupuncture or electroacupuncture (various needle techniques were accepted); C all the patients were all treated with ERAS strategy,the control group was sham**

acupuncture, waitlist control, usual care, or another intervention; O postoperative symptoms (postoperative oral feeding time, time to first flatus, time to first distension, PSRT, nausea, vomiting); S peer-reviewed prospective RCTs; L Articles written in English or Chinese.

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METHODS

Participant or population: Human studies.

Intervention: Acupuncture including manual acupuncture or electroacupuncture (various needle techniques were accepted).

Comparator: Sham acupuncture, waitlist control, usual care, or another intervention.

Study designs to be included: peer-reviewed prospective RCTs.

Eligibility criteria: Exclusion criteria: Animal studies; Non-acupuncture; acupuncture combined with medicine; either acupressure or laser acupuncture without needles; auricular acupuncture or fire acupuncture;patients were treated without ERAS strategy; preoperative symptoms; Retrospective studies,Reviews, Meta-analyses, Abstracts, Letters, Congress proceedings, case reports, cross-sectional or case control studies;Articles written in any other language.

Information sources: The authors searched electronic databases:PubMed, Web of Science, EMBASE, Cochrane Library, China National Knowledge Infrastructue (CNKI), China Online Journals (COJ) and Chongqing VIP Chinese Science. Bibliographies of relevant papers and websites were screened and authors were contacted for missing outcomes byu contacting with authors. Supplementary studies were searched from references of include studies and clinical trial registration centers as follows: a. http://www.chictr.org.cn b. https://www.clinicaltrials.gov/ c. https://www.clinicaltrialsregister.eu/

Main outcome(s): The primary outcomes were postoperative oral feeding time, time to first flatus, time to first distension, peristaltic sound recovery time (PSRT), nausea and vomiting as individual symptoms.

Additional outcome(s): They also evaluated pain control, adverse events and names of acupoint reported in included studies.

Quality assessment / Risk of bias analysis: The authors appraised the quality of each article using the Cochrane Collaboration Risk of Bias Criteria.

Strategy of data synthesis: The meta-analysis was conducted using Rev-Man 5.4.1. The authors compared the acupuncture group versus the control group for each item. The effect sizes for each item were measured as standardized mean difference (SMD) and the corresponding 95% confidence intervals (CI). Heterogeneity was quantified using the I2 statistic. In case of high heterogeneity (I2>50%), random effects methods were used, and in case of low heterogeneity (I2⩽50%) fixed effects

methods were used. Only studies with full available data were included in the analysis, and authors of the original studies were contacted if data was missing. Analysis went further when the authors did not respond for a period longer than four weeks.

Subgroup analysis: time to first flatus and time to first distension were used by subgroup analysis (manual acupuncture or electroacupuncture).

Sensitivity analysis: An overall p-value of the models was obtained in which significant results meant $p<0.05$. An effect size with an overall SMD< 0.2 was considered very small, 0.2–0.5 small, 0.5–0.8 medium, and > 0.8 large.

Country(ies) involved: China.

Keywords: acupuncture, enhanced recovery after surgery, meta-analysis, gastrointestinal function.

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