INPLASY

The effects of acupuncture and related techniques for the treatment of chronic spontaneous urticaria in animal studies: a protocol for systematic review and meta analysis

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ADMINISTRATIVE INFORMATION

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 July 2023 and was last updated on 16 July 2023.

INTRODUCTION

*R*eview question / Objective How do acupuncture and related techniques affect the treatment of chronic spontaneous urticaria in animal models?

Condition being studied Chronic spontaneous urticaria (CSU) is defined as persistent wheals, angioedema, or both lasting for over 6 weeks due to known or unknown causes. Acupuncture is frequently used in treating CSU in China and many other countries. And there are many clinical studies have demonstrated that acupuncture has positive effect in treating CSU. But the underlying mechanism of acupuncture in treating CSU has not yet been found. So there is more and more animal studies conducted to explore the underlying mechanism. Here, we provide a systematic overview of published animal studies on the prevalence and relevance of acupuncture in CSU to discuss the potential correlation between them.

METHODS

Participant or population All kinds of animal models of chronic spontaneous urticaria (all sexes), except for animals with urticaria caused by otherdiseases.

Intervention All animal models with CSU which used acupuncture and related techniques alone as intervention, including acupuncture, electroacupuncture, moxibustion, acupressure, cupping, acupoint injection, laser acupuncture, auricular acupuncture, scalp acupuncture, acupoint bloodletting therapy, fire acupuncture, intradermal needling and acupoint catgut embedding, etc. All timings, frequencies and duration of treatment are eligible for inclusion.

Comparator Chinese medicine, Western medicine, Sham acupuncture, placebo, undergoing no treatment at all, etc.

Study designs to be included Any controlled studies with independent control groups will be included and there are no publication date restrictions. Languages include English and Chinese, and Chinese will be translated into the final English version.

Eligibility criteria Exclusion criteria: (1) Non-animal models such as in vivo, in vitro and in silico models.(2) The intervention is acupuncture combined with Chinese or Western medicine or any other type of treatment.(3) The purpose of the intervention is to compare different acupuncture treatments or different acupuncture points.(4) Case studies, cross-over studies, and any studies without a control group.(5) No relevant results were reported. (6) Duplicatepublications.

Information sources This review will systematically search the following databases: Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, MEDLINE, Embase, PsycINFO, Chinese Biomedicine Literature (CBM), Chinese Medical Current Content (CMCC), Chinese Scientific Journals Database (VIP), WanFang Database and China National Knowledge Infrastructure (CNKI). Databases will be searched from their inception dates to February 6, 2023. No language restrictions were applied in the search strategy. This review is designed according to The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines and the quality of each study will be independently assessed using the Collaborative Approach to Meta Analysis and Review of Animal Data from Experimental Stroke （CAMARADES） checklist. Two examiners will sift through evidence using the PICOS (Participant, Intervention, Comparators, Outcomes, Study Design) framework, and a third will resolve any disagreements. The searches will be re-run prior to the final analysis.

Main outcome(s) The results assessed in this systematic review and meta-analysis included the following outcomes, passive cutaneous anaphylaxis, capillary permeability, mast cell degranulation, itching inhibition rate, delayed type allergy, IgE level, peripheral blood eosinophils level, IL-4 level, etc, which are commonly used to analyse the treating effects in CSU in animal models.

Data management Two researchers will be responsible for data extraction. All the results will be integrated into a spreadsheet. Data to be collected include study details (name of the first author, year of publication, original language, follow-up period, type of outcome), animal information (breed, sex, age, initial symptom score, sample size), study design (experimental groups; number of experimental groups; type of anesthetic agent; main control groups; number of control groups; the time of the outcome assessment), outcomes of interest (primary outcome(s): the results of passive cutaneous anaphylaxis, capillary permeability, mast cell degranulation, itching inhibition rate. secondary outcome(s) : delayed type allergy, peripheral blood eosinophils level, IgE level, IL-4 level), intervention of interest (the specific type of acupuncture treatment, the procedure, starting time, frequency and duration for the treatment). If the data are available in multiple presentations, we tend to use the data after adjusting for confounding factors. To reduce bias and errors in data extraction, the two researchers will independently extract data from the included studies and cross-checked them after extraction. Differences will be resolved through discussion and, if necessary, by a third author.

Quality assessment / Risk of bias analysis The quality of each study will be assessed using the Collaborative Approach to Meta Analysis and Review of Animal Data from Experimental Stroke （CAMARADES） checklist. Two reviewers will independently extract the data and assess the quality of each study. Disagreements will be resolved by discussion with a third researcher.

Strategy of data synthesis All the results we need from the included studies will be extracted using random-effects meta-analysis. A PRISMA flow chart showing the number of papers remaining at each stage will be presented to document the study selection process. The results of passive cutaneous anaphylaxis, capillary permeability, mast cell degranulation, itching inhibition rate, peripheral blood eosinophils level, IgE level, IL-4 level will be calculated using the standardized mean difference (SMD) and 95 % confidence intervals (CI). The Standardized Mean Difference (SMD) is equal to the difference in the mean outcome between groups divided by the standard deviation of the outcome between participants, it is reported in standard deviation and allows data measured on different scales to be combined. The meta-analysis will be performed using RevMan5.4 software. P-values less than 0.05 will be considered statistically significant.

Subgroup analysis Subgroup analyses will also be used to identify associations between relevant

study characteristics, such as different type of animal models, sex, anesthetic method, type and duration of acupuncture and study quality, when substantial heterogeneity existed.

Sensitivity analysis When there is heterogeneity among studies, the pooled effect size will be estimated using a random-effects model. Heterogeneity Both the $\chi 2$ test and the I^2 statistic will be used for the assessment of heterogeneity between the studies in effect measures. We will consider an I^2 value greater than 50% suggests unacceptable heterogeneity. For studies comparing different types, timing or duration of acupuncture treatment with a single control group, each data from all experimental groups will be pooled for comparison with the control group. Pooled effect sizes will be estimated using fixed and random effects models.

Language restriction English and Chinese.

Country(ies) involved China.

Keywords acupuncture, chronic spontaneous urticaria, animal studies, systematic review.

Dissemination plans The results found from this systematic review will be published in peer-reviewed journals or presented at international conferences and institutional academic workshops.

Contributions of each author
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