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Needling therapy for Burn injury and related complications: A Scoping Review of Experimental and Clinical Studies

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ADMINISTRATIVE INFORMATION

Support - None.

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 22 May 2024 and was last updated on 22 May 2024.

INTRODUCTION

Review question / Objective The aim of this scoping review is to examine how research is conducted on the needling therapy for burns and its related complications in both experimental and clinical study. By exploring the mechanism identified in experimental studies and the current stage of clinical studies, it would possible to clarify key characteristics related to burns and its complications.

Background Burn injuries are caused by friction, cold, heat, radiation, chemical or electric sources. Burns are classified as either minor or major, and these are evaluated by the size and depth (e.g. the total body surface area (TBSA) or degree of burn depth). Treatments are determined by the severity of injuries, ranging from conservative treatment to surgery. Burn injuries also lead to long-lasting physical, functional, aesthetic, psychological and social consequences.
Needling therapy has been known for a treatment option for burns in Korea. It can accelerate the local blood circulation, promote growth factors and modulate inflammatory process. However, there is a few experimental and clinical studies on burns and its complications. To explore the current stage of the studies and to identify the types of available evidence in these field, we plan to conduct a scoping review for both experimental and clinical studies.The aim of this scoping review is to examine how research is conducted on the needling therapy for burns and its related complications in both experimental and clinical study. By exploring the mechanism identified in experimental studies and the current stage of clinical studies, it would possible to clarify key characteristics related to burns and its complications.

Rationale Needling therapy is frequently used to treat burns and its complications in Korean Medicine clinic, however, its mechanism and clinical evidence have not yet been established. Although several experimental studies have been published, the number is small, so that it is difficult to infer a consistent mechanism. In the case of clinical studies, most of them are just case reports or case series. As the protocol for needling therapy

for burns and it complications has not been developed, there is a need to investigate what types of needling therapies are being applied in currently conducted clinical research. Therefore, by analyzing the status of experimental and clinical studies on the needling therapy for burns and it complications, we would identify the mechanisms that has proven so far and systemically review clinical research data, according to the STandards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA) form. We expect this study could suggest directions for future follow-up research such as randomized controlled trial or systematic review.

METHODS

Strategy of data synthesis Studies published up to May, 2024 will be retrieved from the following 9 databases: MEDLINE via PubMed, Embase via Ovid, the Cochrane Central Register of Controlled Trials, China National Knowledge Infrastructure (CNKI), CiNii, Research information Service System (RISS), Korean Studies Information Service System (KISS), Database Periodical Information Academic (DBpia), and Oriental Medicine Advanced Searching Integrated System (OASIS). The World Health Organisation International Clinical Trials Registry Platform will also be screened to reduce the risk of publication bias.

Potentially missing eligible studies will be manually scanned as well from the reference lists of other systematic reviews and the relevant conference proceedings.

Examples of searching terms for Pubmed is following:

#1 ("burns"[MeSH Terms] OR "burns"[All Fields] OR "burn"[All Fields] OR "scald"[All Fields] OR "scalded"[All Fields] OR scalding"[All Fields] OR "scaldings"[All Fields] OR "scalds"[All Fields])

#2 ((Needling[Title/Abstract]) OR (dry needling[Title/Abstract]) OR (needling therapy[Title/Abstract]) OR (Acupuncture Therapy[Title/Abstract]) OR (Acupuncture Treatment[Title/Abstract]) OR (Acupuncture Treatments[Title/Abstract]) OR (Treatment, Acupuncture[Title/Abstract]) OR (Therapy, Acupuncture[Title/Abstract]) OR (Pharmacoacupuncture Treatment[Title/Abstract]) OR (Treatment, Pharmacoacupuncture[Title/Abstract]) OR (Pharmacoacupuncture Therapy[Title/Abstract]) OR (Therapy, Pharmacoacupuncture[Title/Abstract]) OR (Pharmacoacupuncture[Title/Abstract]) OR (Acupotomy[Title/Abstract]) OR (Acupotomies[Title/Abstract]) OR (Warm needle acupuncture[Title/Abstract]) OR (needle warming therpy [Title/Abstract])OR (Electroacupuncture[Title/Abstract]) OR (Acupuncture, Ear[Title/Abstract]) OR (Ear Acupunctures [Title/Abstract]) OR (Auricular Acupuncture [Title/Abstract]) OR (Ear Acupuncture [Title/Abstract]) OR (Acupuncture, Auricular [Title/Abstract]) OR (Acupunctures, Auricular [Title/Abstract]) OR (Auricular Acupunctures [Title/Abstract]) OR (Acupuncture Points [Title/Abstract]) OR (Acupuncture Point [Title/Abstract]) OR (Point, Acupuncture [Title/Abstract]) OR (Points, Acupuncture [Title/Abstract]) OR (Acupoints, Acupoint [Title/Abstract]) OR (Medical Needling [Title/Abstract]))

#3 #1 AND #2.

Eligibility criteria Experimental studies, case studies, observational studies, any type of clinical trials and reviews of acupuncture treatment for animal models or patients with any types of burns and/or its complications without restrictions on publication language will be eligible for inclusion. For the type of intervention, we defined needling therapy as those therapies involving the insertion of needles, including dry needling, manual acupuncture, electroacupuncture, auricular acupuncture pharmaco-acupuncture, acupotomy and medical needling. Other therapy that doesn't puncture the skin or combines other stimulation methods, including acupressure, transcutaneous electrical acupoint stimulation, warm needling, plum blossom needle, fire needling, cupping and moxibustion, will be excluded.

Comparison interventions, including active therapies (western medications, traditional chinese medicines, topical antimicrobial creams, dressings, surgery including surgical debridement, burn wound excision, autografing, temporary coverage with skin substitute), sham needling (pseudo needling interventions, non-penetrating sham needling, and needling at inappropriate points), and no treatment, will be included.

Needling therapy either used alone or combined with other therapies which are the same as the comparison intervention will also be included.

Source of evidence screening and selection The titles and abstracts of studies will be browsed by 2 independent researchers (S-AK and T-HK), after retrieving all eligible studies in Endnote 21 (Clarivate Analytics) and eliminating duplicate publications. Full texts of all potentially eligible studies will be scanned. Any disagreement on data selection will be solved with the arbiter(JWK).

Data management Data will be independently extracted by two authors (S-AK and T-HK) using predefined data extraction forms. S-AK is is knowledgeable in the review topic, and T-HK is a methodology expert. Disagreements between the reviewers will be resolved by a third arbitrator

(JWK). We will use R software ver.4.3.1. for conducting data extraction and statistical analyses.

Reporting results / Analysis of the evidence The following data will be extracted: the first author's name, year of publication, country, burn model, degree of burn, burn area, intervention/comparison, outcome measures, mechanism, adverse events, main findings, etc. For clinical studies, the first author's name, year of publication, country, study design and settings, study population, burn type, degree of burn, total body surface area (TBSA), burn area, intervention/comparison, outcome measures, adverse events, and main findings will be extracted. Several items might be excluded, if these could not be applicable due to the each clinical study design. The disagreement between the two reviewers was resolved by the third arbitrator (JWK).

Presentation of the results A draft, figure or table will be presented for results.

Language restriction No.

Country(ies) involved South Korea.

Other relevant information To assess the quality of randomized controlled trial (RCT) and systematic review (SR), we will ythe Cochrane risk of bias (ROB) tool and The Measurement Tool to Assess systematic Reviews (AMSTAR) 2 to analyze the risk of bias and compliance to each checklist item.
The criteria for assessment items will be formed based on Animal Research: Reporting of In Vivo Experiments (ARRIVE) guidelines 2.0, Case Report (CARE) guidelines, and Strengthening the Reporting of Observational studies in Epidemiology (STROBE).

Keywords burns; complication; needling therapy; scoping review.

Dissemination plans The essential protocol amendments will be documented in the full review. The results will be disseminated in a peer-reviewed journal.

Contributions of each author
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