INPLASY

Acupuncture Therapy for the Treatment of Myelosuppression after Chemotherapy: a scoping review of randomised controlled trials

INPLASY202410115

doi: 10.37766/inplasy2024.1.0115

Received: 28 January 2024

Published: 28 January 2024

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ADMINISTRATIVE INFORMATION

Support - Province project support.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202410115

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 January 2024 and was last updated on 28 January 2024.

INTRODUCTION

Review question / Objective In order to comprehensively conduct the scoping review of acupuncture related treatments for chemotherapy-induced bone marrow suppression in cancer patients, the following key points were identified.
(1)To examine the methodologies and extent to which acupuncture has been applied in treating chemotherapy-induced bone marrow suppression in cancer patients.
(2)To investigate the impacts of the application of for chemotherapy-induced bone marrow suppression in cancer patients.
(3)To determine if there are any gaps in researching and identifying the directions for future research.This scoping review aims to synthesize randomized controlled trials (RCTs) evaluating the efficacy of acupuncture therapy in the treatment of myelosuppression, a common complication of chemotherapy.

Background Cancer is a major public health problem worldwide, with an increasing burden of cancer incidence and mortality observed over the past half century. Cancer not only can cause physical discomfort and pain, impaired function, and emotional distress, but also pose a life-threatening risk to patients, so once cancer is diagnosed, treatment needs to be carried out immediately. Chemotherapy, which is a method of killing tumor cells and/or inhibiting the growth and proliferation of tumor cells by chemical drugs, is an important means to treat cancer. Although the effect is good, it can easily cause a number of harmful side effects , such as myelosuppression.
As one of the most common side effects after antineoplastic chemotherapy, myelosuppression is mainly characterized by the decrease of the number of bone marrow cells, the decrease of hematopoietic tissue activity and the decrease of hematopoiesis, which can cause infection, induce sepsis, and lead to interruption of chemotherapy. This is particularly apparent in cancer chemotherapy where anti-neoplastic drug-induced thrombocytopenia, neutropenia, anaemia, vascular

disorders, liver injury and lung disease as well as many dermatological manifestations. In addition, the lack of effective treatment of side effects can adversely affect the prognosis and life quality of patients.

For these side effects, existing drug treatments are expensive and the effects remain only for a short period of time. In addition, it can cause rashes, bone pain, fever, and other adverse reactions. However, as one of the most popular forms of alternative and complementary medicine in the world, acupuncture has been widely applied for more than three thousand years and has amassed a wealth of clinical and theoretical evidence. Today, acupuncture has already received considerable attention. Numerous studies have indicated that acupuncture not only alleviates the symptoms (e.g., fatigue, chronic pain, anorexia/cachexia, and insomnia) of patients with cancer and improves their quality of life, but also diminishes adverse reactions and complications caused by chemotherapy, Such as gastrointestinal adverse reactions (including diarrhea, nausea and vomiting), incidence of myelosuppression, leukopenia induced, peripheral neuropathy and so on.

Rationale In recent years, the related clinical trials and preliminary animal studies indicate that acupuncture therapy has a good synergistic effect during chemotherapy, and can effectively alleviate myelosuppression caused by chemotherapy, and the cost of therapy is relatively cheap, with fewer side effects. However, although acupuncture has the record of safety and validity in myelosuppression, there still remains a controversial treatment for myelosuppression, largely owning to the lack of highquality systematic evaluation. As a result, this scoping review was conducted to summarize the current evidence on the effectiveness and safety of acupuncture for treating myelosuppression after chemotherapy, and also evaluating the quality and bias of the systematic reviews and meta-analyses reviewed to identify the future research directions.

METHODS

Strategy of data synthesis Seven key electronic databases, including Cochrane Database, Web of Science, PubMed, Embase, China National Knowledge Infrastructure (CNKI), China Science and Technology Journal Database (VIP), and Wanfang Database will be searched since the establishment of the database. The search will use the following search terms: “myelosupression syndrome”,“myelosupression syndrome”, “acupuncture”, “Randomized Controlled Tria” and their synonyms.

Eligibility criteria (1)Types of studies: Randomized controlled clinical trials (RCTs), controlled clinical trials, investigating the effificacy and safety of acupuncture-related therapies for Chemotherapy-induced adverse reactions in cancer patients.(2)Types of participants: Patients who were pathologically or cytologically diagnosed with malignancy and developed chemotherapy-induced bone marrow suppression were considered. No restriction on gender, age, or nationality was set.(3)Types of interventions: Patients in the treatment group were treated with acupuncture treatment (such as acupuncture, warming needle, moxibustion, etc.). The studies could use multimodal interventions, but acupuncture therapy had to be included. Patients in the control group were treated with conventional chemotherapy regimens or further given conventional Western medicine and placebo treatments.(4)Types of outcomes: no restriction.

Source of evidence screening and selection All literature from the electronic database searches were exported to EndNote , and duplicates were removed by using the “Find Duplicates” function. The initial screening of titles and abstracts, subsequent full article screening.Mengting Xie and Shan Zhang conducted data identification independently. Any discrepancies were resolved by consensus, and, where necessary, by consulting a third researcher. The final literature included were tabulated into summary tables for ease of reference.

Data management A data extraction sheet was created by using Microsoft Excel based on the data items listed on the Preferred Reporting Items for PRISMA-ScR. The following information was extracted pertaining to the reference title, first author’s name, year of publication, study location, study design, study population and sample size, patient characteristics (e.g., age, sex, duration), anti-cancer therapy history, type and cycle of current anti-cancer therapy, time since chemotherapy, exposure, intervention and comparisons, outcome measurements, statistical analysis method. According to the PRISMA-ScR guidelines and checklist, all included articles were assessed for methodological quality using the AMSTAR 2 tool to quantify study rigor by Mengting Xie and SuZhen.

Reporting results / Analysis of the evidence According to the PRISMA-ScR guidelines and checklist, all included articles were assessed for

methodological quality using the AMSTAR 2 tool to quantify study rigor by Mengting Xie and SuZhen.

Presentation of the results Strategy of data synthesis: Collating and presenting aforementioned extracted information in tabular form according to objective of this scoping review. The tabulated results were supported by narrative summaries to describe how the results related to the research question.
Subgroup analysis: As scoping review research, there will be no plan for analysis subgroup data.
Sensitivity analysis: As scoping review research, there will be no plan to perform the sensitivity analysis of data.

Language restriction No restrictions will be applied on language.

Country(ies) involved China.

Other relevant information None.

Keywords Myelosuppression after Chemotherapy; Acupuncture; Scoping review.

Dissemination plans The findings will be published in peer-reviewed journals and/or presented at scientific conferences.

Contributions of each author
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