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Acupuncture for radiotherapy-induced radiation enteritis: a systematic evaluation and meta-analysis

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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 17 November 2023 and was last updated on 22 December 2023.

INTRODUCTION

Review question / Objective To assess the efficacy of different acupuncture treatments for radiotherapy-induced radiation enteritis and to identify the optimal regimen. Eligible randomized controlled trials (RCTs) were collected from multiple bibliographic databases. The analyzed literature was assessed for risk of bias using the Cochrane risk of bias tool. Meta-analysis was mainly performed using STATA 14.2 and Revman software.

Condition being studied Radiation enteritis is an intestinal complication of abdominal, pelvic, and retroperitoneal malignant tumors after radiation therapy, which can be divided into two types according to the urgency of onset: acute radiation enteritis and chronic radiation enteritis, in which acute radiation enteritis has an early onset and is caused by direct damage to the intestinal mucosa caused by rays, with the clinical manifestations of diarrhea, hemorrhage in the stools, and abdominal pain, etc.: Chronic radiation enteritis usually occurs several months to years after the end of radiation therapy, with clinical symptoms mainly manifesting as recurrent mucous membranes. Clinical symptoms, mainly manifested as repeated mucus, pus and blood stool, intestinal stenosis, intestinal perforation, chronic diarrhea and other doors. The pathogenesis of radiation enteritis is complex, and there is still a lack of effective preventive and curative drugs, which makes it difficult to deal with, mainly focusing on symptomatic supportive treatments such as prevention of infection, promotion of ulcerative wound healing, and reduction of clinical symptoms.

METHODS

Participant or population People with intestinal complications following radiation therapy for abdominal, pelvic, and retroperitoneal malignancies.

Intervention Acupuncture treatment was the intervention group.

Comparator General treatment (medication) was the control group.

Study designs to be included A study of the treatment of radiation enteritis using a randomized controlled approach.

Eligibility criteria Studies were included if the following criteria were met:(1) Randomized controlled trials in peer-reviewed journals; (2) Individuals with a diagnosis of radiation enteritis who received radiation therapy regardless of the type of cancer; (3) Experimental group received acupuncture treatment [i.e., moxibustion, moxibustion, electroacupuncture (EA), acupressure, acupressure injections (AI), acupressure poultices (AP), transcutaneous electrical stimulation (TEN)] with or no medication; (4) the control group contained placebo, usual care, and medication; and (5) at least one of the following endpoints was reported: remission rate of radiation enteritis, incidence of radiation enteritis, safety ratings, and specific endpoint indicators such as salivary flow rate for dry mouth and white blood cell levels for postradiotherapy leukopenia.Studies were excluded if the following criteria were met: (1) nonrandomized controlled trials; (2) studies without complete cave prescriptions; and (3) full text not found or insufficient raw data.

Information sources Relevant randomized controlled trials (RCTs) were collected from nine bibliographic databases, including PubMed/ Medline, Cochrane Library, Web of Science, Ebsco, Embase, China Knowledge (CNKI), Wanfang database, VIP database, and China Biomedical Disc (CBM).

Main outcome(s) Disease remission rate, incidence, serum inflammatory factor levels, and clinical outcomes Changes in the level of serum inflammatory factor and clinical efficacy.

Quality assessment / Risk of bias analysis Cochrane risk of bias (ROB 2.0) was used to assess quality. A total of five items were evaluated. The study would be considered high risk if high risk appeared in 5 items, or if more than 2 items were considered to be problematic in some way. If all 5 items were considered low risk, the study would be considered low risk. Other cases raised some concerns.

Strategy of data synthesis This study used both Stata 14.2 and Revman for the presentation of results. OR and 95% CI were used to measure effect values for dichotomous data, such as incidence and remission rates. Comparatively, SMD and 95% CI were applied to continuous variable data, such as salivary flow rate and leukocyte levels. In the case of extreme outcomes, when the incidence rate was 0, the authors artificially increased both the incidence rate and sample size by 0.5.

Subgroup analysis To reduce inter-study heterogeneity and increase the precision, depending on the interventions, the apparent efficiency, the incidence of adverse reactions and the time to disappearance of clinical symptoms were subgroup analyzed.

Sensitivity analysis Meta-analysis was performed using Review Manager 5.3 software. Analysis. Heterogeneity was analyzed according to the possible heterogeneity factors among the studies. Statistical heterogeneity was assessed by the I2 test: if I2 ≤ 50%, it was considered that the statistical heterogeneity was small and the fixed-effect model was used. If I2 ≤ 50%, it was considered that the statistical heterogeneity was small and the fixed-effects model was used; if I2 > 50%, it indicated that the statistical heterogeneity was large and the random-effects model was used. If I2>50%, it means that the heterogeneity of statistics is large, and then the random effect model will be used for sensitivity analysis.

Country(ies) involved China.

Keywords Acupuncture therapy; side effects; meta-analysis; radiotherapy; systematic evaluation.

Contributions of each author

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H.G and J.Z conceived and designed the study; Hq. Y and L.Y conducted the literature search and data collection; Hq. Y analysed the data; L.Y and H.G wrote the paper. H.G and Hq. Y reviewed and edited the manuscript. All authors read and approved the final manuscript.