INPLASY PROTOCOL

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Support: **YES.**

Review Stage at time of this submission: **Formal screening of search results against eligibility criteria.**

Conflicts of interest:
None declared.

Acupuncture for osteoporotic vertebral compression fracture: a systematic review and meta-analysis of randomized clinical trials

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Review question / Objective: **The purpose of this article is to evaluate the effect and safety of acupuncture on the pain of vertebral compression fractures caused by osteoporosis.**
Information sources: **Electronic databases: PubMed, EMBASE, Cochrane Library, Web of Science, China BioMedical Literature (CBM), China National Knowledge Infrastructure (CNKI), Chinese Scientific Journals Database (VIP) and Wanfang Database.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 May 2021 and was last updated on 17 May 2021 (registration number INPLASY202150062).

INTRODUCTION

Review question / Objective: **The purpose of this article is to evaluate the effect and safety of acupuncture on the pain of vertebral compression fractures caused by osteoporosis.**

Condition being studied: **With the development of modern medicine, the average life expectancy of human beings has increased, and the proportion of the elderly population (>60 years old) is constantly increasing. It is estimated that the proportion of the elderly population will reach 21.1% (approximately 2 billion) by 2050. Osteoporosis is an important cause of fractures in people over the age of 50. It can lead to complex and serious complications, affect people's psychology**

and physiology, and increase the medical burden of fracture patients. Vertebral compression fractures are the most common fractures caused by osteoporosis, with more than 1.4 million cases worldwide. Osteoporotic vertebral compression fracture (OVCF) mainly manifests as severe back pain, abnormal posture, digestive/ respiratory disorders, etc., which leads to a decrease in the patient's quality of life. The current clinical treatment plans and recommendations for the treatment of this disease are not completely unified, and even for cured patients, their levels of pain and disability, did not return to their pre-fracture state. Therefore, medical intervention is required to relieve pain and improve the patient's health condition. Acupuncture has been used in China for thousands of years to relieve many different types of pain, such as acupuncture for chronic musculoskeletal, headache, and osteoarthritis pain. The purpose of this article is to evaluate the effect and safety of acupuncture in the treatment of OVCF, there is no such evaluation yet.

METHODS

Search strategy: We used "Osteoporosis" "Fractures, Compression" and "Acupuncture"as the subject words, "Osteoporoses""Bone Loss" "Bone Losses""Compression Fracture""Fracture, Compression""Compression Fractures" "Acupuncture and moxibustion""needle therapy""needle""Electroacupuncture"as free words. We used subject and free words jointly to search the titles and abstracts of the eight databases aforementioned.

Participant or population: People with osteoporotic compression fractures.

Intervention: Acupuncture.

Comparator: Any type of control group including surgery, western medicine, etc.

Study designs to be included: Randomized clinical trials (RCTs).

Eligibility criteria: (1) Participants: No restrictions on country, race, language, age, and gender. Patients should have clear diagnostic criteria for OVCF(by X-ray,CT or MRI examination etc.), and with no serious cardiovascular and cerebrovascular diseases and contraindications to acupuncture. Patients should have, no cognitive impairment, no pain caused by other causes such as tumors and tuberculosis.

Information sources: Electronic databases: PubMed, EMBASE, Cochrane Library, Web of Science, China BioMedical Literature (CBM), China National Knowledge Infrastructure (CNKI), Chinese Scientific Journals Database (VIP) and Wanfang database.

Main outcome(s): Visual Analogue Scale.

Quality assessment / Risk of bias analysis: The quality of studies included was assessed, by two investigators, using Cochrane risk assessment tool which had been incorporated in RevMan 5.4.1 to independently evaluate the quality of the included literature.

Strategy of data synthesis: Data for the included literature was analyzed using RevMan 5.4.1 software downloaded from the Cochrane website. All the obtained outcomes were continuous variables thus we choose the Mean Difference (MD) to calculate the summary statistics at 95% confidence interval (CI). Random effect model and Fixed effects model were used to perform analysis.

Subgroup analysis: Medicine and acupuncture, PVP and acupuncture, PKP and acupuncture.

Sensitivity analysis: Sensitivity analysis was performed where necessary.

Country(ies) involved: China.

Keywords: osteoporotic vertebral compression fracture, acupuncture, systematic review, meta-analysis.

Contributions of each author:

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