

INPLASY PROTOCOL

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Effects of Mind-body Exercise on Cardiopulmonary function, blood pressure and Quality of Life in CHD Patients A protocol of Systematic Review and Meta-Analysis

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Review question / Objective: Patient: Inclusion criteria:(1) New York Heart Association (NYHA) classification I ~ III; (2) 40 years old \leq age < 70 years old; (3) no hemodynamic disorder; (4) good compliance. Intervention: The intervention methods of the experimental group were mind-body exercise, including Tai Chi, yoga, Qigong, meditative movement, etc. The control group included usual care, no physical activity, and no-intervention control group and other different types. Outcomes: The purpose of this meta-analysis is to evaluate the effects of mind-body exercise on the cardiopulmonary function, blood pressure, heart rate and quality of life in patients with coronary heart disease, and to provide specific exercise prescriptions about the time, intensity and frequency of mind-body exercise for patients with coronary heart disease.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 February 2021 and was last updated on 03 February 2021 (registration number INPLASY202120016).

INTRODUCTION

Review question / Objective: Patient: Inclusion criteria:(1) New York Heart Association (NYHA) classification I ~ III; (2) 40 years old \leq age < 70 years old; (3) no hemodynamic disorder; (4) good compliance. Intervention: The intervention methods of the experimental group were

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quality of life in patients with coronary heart disease, and to provide specific exercise prescriptions about the time, intensity and frequency of mind-body exercise for patients with coronary heart disease.

Condition being studied: Coronary heart disease(CHD) has become one of the main causes of death in the world. Nearly every 25 seconds, an American will have a coronary event related to CHD, and every minute someone will die from one. According to data from the World Health Organization (WHO), around 80% of the risk factors for CHD can be influenced by the patient's behavior; this applies above all to lack of exercise, poor nutrition, overweight, and chronic subjective stress. In recent years, the treatment of coronary heart disease in addition to conventional treatment also includes some non pharmacological alternative therapy.Regular physical activity in the form of exercise has been used as an alternative therapy for many cardiovascular diseases, particularly CHD. It is well documented that exercise prevents and even reverses CHD. Therefore, health care providers are encouraged to reduce the risk of CHD by recommending appropriate aerobic exercises to patients to promote a healthy lifestyle. Some studies have shown that exercise training can effectively strengthen the aerobic metabolism of patients with coronary heart disease, which is conducive to the regulation of blood pressure, blood glucose and blood lipid of patients. In addition, it can also improve the cardiopulmonary function of patients.

METHODS

Search strategy: This research review will include the following electronic databases from its establishment to December 2020: PubMed, EMBASE, Web of Science, Cochrane Library, the Chinese National Knowledge Infrastructure, the Chinese Science and Technology Periodical Database, and Wanfang. The search terms will include “mind-body exercise”, and “yoga” or “taichi” or “tai ji quan” or “Taiji boxing”or “ tai chi chuan” “qigong” or

“health qigong ”or “meditation”, with CHD terms including “coronary heart disease” or “CHD”.

Participant or population: Inclusion criteria: (1) New York Heart Association (NYHA) classification I ~ III; (2) 40 years old ≤ age < 70 years old; (3) no hemodynamic disorder; (4) good compliance.

Intervention: The intervention methods of the experimental group were mind-body exercise, including Tai Chi, yoga, Qigong, meditative movement, etc.

Comparator: The control group included usual care, no physical activity, and no-intervention control group and other different types.

Study designs to be included: The inclusion criteria were randomized controlled trials (RCTs), with mind-body exercise as the main form of intervention. The language of literature only includes Chinese or English.

Eligibility criteria: We will only include randomized controlled trials (RCTs), whereas non-RCTs, quasi-RCTs, and any other types of studies will be excluded.

Information sources: This research review will include the following electronic databases from its establishment to December 2020: PubMed, EMBASE, Web of Science, Cochrane Library, the Chinese National Knowledge Infrastructure, the Chinese Science and Technology Periodical Database, and Wanfang.

Main outcome(s): The indexes of cardiopulmonary function were VO₂max, HRmax and LVEF.

Additional outcome(s): The following were defined as secondary outcomes: (1)Atherosclerosis; (2) Systolic and diastolic blood pressure; (3) Quality of life.

Quality assessment / Risk of bias analysis: Two independent reviewers (Duan and Wang) will use the Modified Physical Therapy Evidence Database (PEDro) scale [14] to evaluate the methodological quality

of each eligible study. The assessment includes the following 11 items: Item1 = explicit inclusion criteria; Item2 = randomization; Item3 = allocation concealment; Item4 = Similar at baseline; Item5 = Subjects blinded; Item6 = Therapists blinded; Item7 = Assessors blinded; Item8 = more than 85% retention; Item9 = Intention-to-treat analysis; Item10 = Between-group comparisons; Item11 = Point measures and variability data. The score of each item is 1 (clearly described in the article), or 0 (absent or unclear). According to different total scores, each study will be divided into three quality levels: high (9-11), moderate (5-8) and low (0-4). Any disagreement will be resolved through discussion and negotiation with a third experienced reviewer(Yang). /We will generate a funnel chart to evaluate the reporting bias. For continuous variables, Egger test will be used to test the asymmetry of funnel plot. It is generally believed that asymmetric funnel plot will present publication bias, which is one of the reporting bias, but it also means that there may be other reasons, such as methodological quality differences or real heterogeneity of intervention

Strategy of data synthesis: The Review Manager (v.5.3.5) software will be used for quantitative data analysis, including mapping overall forest plot, heterogeneity analysis, regression analysis, and subgroup analysis. If the I² value is less than 50%, it means that the relative heterogeneity is small, and the fixed effect model should be used. Otherwise, the random effect model will be used.

Subgroup analysis: Considering the possibility of high heterogeneity, we will conduct subgroup analysis to explain the potential causes of heterogeneity when necessary. First of all, the analysis will be based on the age, gender, course of disease of patients with coronary heart disease. In addition, according to the different intensity, time and duration in the process of mind-body exercise intervention.

Sensitivity analysis: Sensitivity analysis will be used to assess the robustness of the results. After data synthesis, we will exclude the combined studies one by one for sensitivity analysis to observe whether the comprehensive results have significant changes. If there are significant changes indicating that the exclusion study has a significant impact on the results, it should be reevaluated. On the contrary, the comprehensive data results are reliable. Chi square test and I² value will be used to quantify statistical heterogeneity.

Country(ies) involved: China.

Keywords: CHD Patients, mind-body exercise, cardiopulmonary function, blood pressure, quality of Life , systematic review, meta-analysis.

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