INPLASY PROTOCOL

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Aerobic Exercises and Cognitive Function in Post-stroke Patients: A protocol for systematic review

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Review question / Objective: Assess the effects of aerobic exercise on cognitive function following stroke, analyze the beneficial effects of different intensity of aerobic exercise on cognitive function of stroke patients.

Condition being studied: Aerobic exercise, Cognitive function, exercise therapy.

Information sources: The following electronic databases will be searched from their inception dates to May 2022: PubMed, the Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, MEDLINE, Web of Science, China National Knowledge Infrastructure(CNKI), Chinese Biomedical Literature Database(CBM), Chinese Scientific Journal Database (VIP database), and Wan-Fang Database.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 May 2022 and was last updated on 15 May 2022 (registration number INPLASY202250095).

INTRODUCTION

Review question / Objective: Assess the effects of aerobic exercise on cognitive function following stroke, analyze the beneficial effects of different intensity of aerobic exercise on cognitive function of stroke patients.

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METHODS

Participant or population: Patients diagnosed by clinicians as having had a stroke of all ages and racial groups will be included. But other pathological conditions or disabilities which affect movement, such as cerebral palsy or dyspraxia were excluded.

Intervention: Aerobic exercises regardless of styles (eg. walking and running on a

treadmill, yoga, Tai Chi, Pilates, cycling, etc.) were practised lasting at least 8 weeks with more than 1 exercise session a week.

Comparator: The comparisons will include retreats, modern medical treatment, traditional Chinese medicine treatment, and physical factor therapy. In addition, the study will include studies comparing the use of aerobic exercise in combination with another treatment method with the use of aerobic exercise alone, or studies comparing the use of aerobic exercise in combination with another treatment method with the use of other treatments alone.

Study designs to be included: Randomized controlled trial.

Eligibility criteria: a)Before the experiment, there was no significant difference between the experimental group and the control group;b) Studies implementing an aerobic exercise programme;c)The primary outcome was global cognitive ability,and the secondary outcomes included any specific cognitive domain ;d) Articles published in English and Chinese only.

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Main outcome(s): The primary outcome is the global cognitive changes. The assessment tools included Montreal Cognitive Assessment (MoCA), Stroke Impact Scale domains(SIS), Trail Making Tests, etc.

Quality assessment / Risk of bias analysis: Cochrane Bias Risk Assessment Tool was used to evaluate the methodological quality of the included literatures. Selection bias, performance bias, Detection bias, Attrition bias, reporting bias and other bias are mainly studied. According to the three grades of low risk, high risk and unbelievable risk, the quality of the included literature was divided into three grades of high quality (5 points or above), medium quality (3-4 points) and low quality (2 points or below) from high to low.

Strategy of data synthesis: Data analysis will be carried out using Review Manager software (V.5.3) provided by the Cochrane Collaboration. Data will be analyzed using relative risk (RR) with 95% confidence interval (CI) and continuous outcomes will be compared to produce a mean difference (MD) or standardized mean difference (SMD) to calculate post-intervention scores for each study. Heterogeneity will be assessed using the I^2 statistic. For studies that had good homogeneity outcomes we will use fixed-effect models, the other outcomes we will use a random-effect model.

Subgroup analysis: Subgroup analysis will be performed to explain heterogeneity if possible. Factors such as different types of control interventions and different outcomes will be considered.

Sensitivity analysis: Sensitivity analyses will be performed to study the potential influence of significant heterogeneity which could be due to intervention types or comparator on the treatment effect direction. The sensitivity analysis adopts the method of eliminating the literature one by one.

Country(ies) involved: China.

Keywords: physical Activity; Aerobic Exercises; Cognitive Function; Stroke.

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