INPLASY PROTOCOL

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None declared.

Effect of different exercise therapies on fatigue in maintenance hemodialysis patients: A Bayesian Network Meta-analysis

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Review question / Objective: **Population: maintenance hemodialysis patients. Intervention: exercise therapy (resistance exercise; aerobic exercise; resistance combined aerobic exercise; muscle relaxation training; Baduanjin). Comparison: simple routine nursing. Outcome: fatigue; sleep quality. Study design: randomized controlled trial.**

Eligibility criteria: **Inclusion and exclusion criteria: RCT of study type exercise intervention in MHD patients' fatigue; Study subjects: MHD patients ≥18 years old, regardless of gender, nationality or race; The intervention measures were exercise therapy, including resistance exercise, aerobic exercise, resistance combined aerobic exercise, Baduanjin, muscle relaxation training, etc. The control group was conventional nursing measures or the comparison of the above exercise therapy; Outcome indicators: The primary outcome indicator was fatigue score, and the secondary outcome indicator was sleep quality score; Exclusion criteria: Literature using non-exercise intervention; Non-Chinese and English documents; Unable to obtain the full text or repeated publication of literature; The data cannot be extracted or the extraction is incomplete; There are serious defects in the design of the research experiment.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 November 2022 and was last updated on 28 November 2022 (registration number INPLASY2022110144).

INTRODUCTION

Review question / Objective: **Population: maintenance hemodialysis patients. Intervention: exercise therapy (resistance exercise; aerobic exercise; resistance combined aerobic exercise; muscle relaxation training; Baduanjin). Comparison: simple routine nursing. Outcome: fatigue; sleep quality. Study design: randomized controlled trial.**

Condition being studied: **end-stage renal disease (ESRD) has become a serious**

global health problem, and maintenance hemodialysis (MHD) is the main treatment for ESRD. The number of patients with MHD is increasing year by year. Studies show that by 2025, there will be 630 cases of MHD per million population in China, and the total number of hemodialysis patients is estimated to reach 870,000. Continuous improvement of hemodialysis technology can prolong the life of patients, but long-term treatment will cause many complications and new psychological and physical discomfort symptoms, such as fatigue, sleep disorders, anxiety, skin itching, pain, and so on. Fatigue was the most common clinical symptom reported by MHD patients, with an average incidence of 68.8%, frequency and severity of 30.1% and 46.2%, respectively, which seriously affected patients' quality of life and reduced patients' treatment compliance. Exercise therapy has been proven to be an effective adjunctive therapy for relieving fatigue in MHD patients and is recommended by relevant clinical guidelines for MHD patients without exercise contraindications. At present, there are many kinds of exercise therapy for MHD patients, and different exercise interventions have their own advantages and disadvantages. Therefore, this study conducted Bayesian network meta-analysis for different exercise therapies to compare the intervention effects of different exercise therapies on fatigue in MHD patients, in order to provide evidence-based evidence for clinical improvement of exercise programs.

METHODS

Participant or population: Patients undergoing maintenance hemodialysis, age ≥18 years, regardless of gender, nationality, race.

Intervention: Resistance exercise; aerobic exercise; resistance combined aerobic exercise; muscle relaxation training; Baduanjin.

Comparator: Simple routine nursing (Health education, Dietary care, Body fluid management and so on for MHD patients; Exercise according to own situation)

Study designs to be included: randomized controlled trial.

Eligibility criteria: Inclusion and exclusion criteria: RCT of study type exercise intervention in MHD patients' fatigue; Study subjects: MHD patients ≥18 years old, regardless of gender, nationality or race; The intervention measures were exercise therapy, including resistance exercise, aerobic exercise, resistance combined aerobic exercise, Baduanjin, muscle relaxation training, etc. The control group was conventional nursing measures or the comparison of the above exercise therapy; Outcome indicators: The primary outcome indicator was fatigue score, and the secondary outcome indicator was sleep quality score; Exclusion criteria: Literature using non-exercise intervention; Non-Chinese and English documents; Unable to obtain the full text or repeated publication of literature; The data cannot be extracted or the extraction is incomplete; There are serious defects in the design of the research experiment.

Information sources: Articles published in PubMed, EMbase, Web of Science, The Cochrane Library, CNKI, CBM, WanFang Data and VIP databases were retrieved. Select the combination of subject words and free words to search. At the same time, the references included in the study were searched to supplement and obtain relevant data.

Main outcome(s): The effects of different exercise therapy on fatigue and sleep quality in MHD patients were compared and ranked.

Quality assessment / Risk of bias analysis: Two reviewers used the Cochrane Manual's bias risk assessment tool for RCTS to assess the risk of bias in the included studies.

Strategy of data synthesis: The software Stata14.0 was used for consistency test, publication bias analysis, graphic preparation and network evidence map construction for each exercise therapy; Bayesian net meta-analysis was performed using OpenBUGS3.2.3 software; The surface under the cumulative ranking curve was calculated by Open BUGS and imported into Stata14.0 for graph drawing and league chart making to reflect the pros and cons of exercise therapy ranking.

Subgroup analysis: The preliminary plan is to divide subgroups by region.

Sensitivity analysis: The sensitivity was analyzed by removing individual studies one by one or changing the combined effect model.

Country(ies) involved: China.

Keywords: maintenance hemodialysis; fatigue; exercise treatment; Bayesian network meta-analysis

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