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Efficacy and safety of hyperbaric oxygen therapy for fibromyalgia: a systematic review and meta-analysis

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Abstract

Objective: To investigate the efficacy and safety of hyperbaric oxygen therapy (HBOT) for fibromyalgia (FM).

Design: A systematic review and meta-analysis.

Data sources: PubMed, EMBASE, Cochrane Library, Web of Science, VIP (China Science and Technology Journal Database), CNKI (China National Knowledge Infrastructure) and WanFang database were searched from from inception to 22 October 2022.

Eligibility criteria: We included clinical trials (randomised controlled and non-randomised controlled trials) of HBOT for FM.

Data extraction and synthesis: Two researchers independently screened the literature, extracted data and evaluated the quality of the included studies, with disagreements resolved by a third researcher. The Cochrane Collaboration checklists and the Methodological Index for Non-randomised Studies were used to assess the risk of bias. Meta-analysis was performed by RevMan V.5.4.1 software. Random effect models were used for meta-analysis.

Results: Nine studies were included in this review, with a total of 288 patients. For pain assessment, we combined the results of the Visual Analogue Scale and Widespread Pain Index. The results showed that HBOT could relieve the pain of FM patients compared with the control intervention (standardised mean difference=-1.56, 95% CI (-2.18 to -0.93), $p<0.001$, $I^2=51\%$). Most included studies reported that HBOT ameliorated tender points, fatigue, multidimensional function, patient global and sleep disturbance in FM. Adverse events occurred in 44 of 185 patients (23.8%). Twelve patients (6.5%) withdrew because of adverse reactions. No serious adverse events or complications were observed.

Conclusions: HBOT might have a positive effect in improving pain, tender points, fatigue, multidimensional function, patient global and sleep disturbance in FM, with reversible side effects. Low pressure (less than 2.0 atmospheric absolute) may be beneficial to reduce adverse events in FM. Further studies should be carried out to evaluate the optimal protocol of HBOT in FM.

Prospero registration number: CRD42021282920.

Keywords: PAIN MANAGEMENT; Rehabilitation medicine; Rheumatology.

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Conflict of interest statement

Competing interests: None declared.