

Could hyperbaric oxygen be an effective therapy option for pathological scars? A systematic review and meta-analysis

[Ruxin Xie](#)¹, [Ai Zhong](#)¹, [Junliang Wu](#)¹, [Ying Cen](#)¹, [Junjie Chen](#)¹

Affiliations expand

- PMID: 35584798
- DOI: [10.1080/2000656X.2022.2075371](https://doi.org/10.1080/2000656X.2022.2075371)

Abstract

Background: Hyperbaric oxygen (HBO) therapy involves breathing pure oxygen or a high oxygen concentration above atmospheric (ATM) pressure in an enclosed chamber. Studies on pathological scars have demonstrated that HBO can inhibit the formation of pathological scars.

Objective: To evaluate the efficacy of HBO in the treatment of pathological scars *via* meta-analysis.

Methods: Searches were run on various databases, including the Cochrane, Embase, PubMed, Web of Science, and CNKI databases. A comparative study was conducted on patients with pathological scars treated with or without HBO. We used RevMan 5.4 software to determine the recurrence rate, treatment satisfaction, and Vancouver Scar Scale(VSS) score in the pathological scar.

Results: A total of 543 publications were identified; after screening, four were selected for review, including one randomized controlled trial (RCT), one controlled clinical trial (CCT), and two retrospective cohort studies. Meta-analysis results showed that HBO treatment reduced the pathological scar recurrence rate after surgery and radiotherapy (OR = 0.26, 95% CI: 0.13-0.52, $p = 0.0001$). Patients had higher satisfaction after HBO therapy (OR = 4.45, 95% CI: 1.49-13.30, $p = 0.007$). The Vancouver scar scale (VSS) score of patients with pathological scars was significantly improved in the HBO group (SMD: -3.82, 95% CI: -6.07to -0.49, $p = 0.02$).

Conclusions: HBO treatment decreased the recurrence rate of pathological scars after surgery and radiotherapy, increased patient satisfaction, and reduced the VSS score, thus providing a new way to treat pathological scar hyperplasia. However, evaluation of the longer-term effects of HBO treatment requires further comprehensive studies, including more RCTs.