

INPLASY PROTOCOL

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None declared.

The effect of Hyperbaric oxygen therapy on the clinical outcomes of Necrotizing soft tissue infections: A Systematic Review and Meta-Analysis

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Review question / Objective: In order to provide reliable recommendations for the use of hyperbaric oxygen therapy (HBO) in the treatment of necrotizing soft tissue infections (NSTI), we conducted a thorough review and analysis of the available evidence to determine the impact of HBO treatment on clinical outcomes in NSTI.

Condition being studied: An international multi-society document of skin and soft-tissue infections (SSTIs) in 2022 points that the role of HBO as an adjunctive treatment has been debated, and no prospective randomized clinical trials (RCTs) have been published nor valid research evidence produced regarding the effects of HBO therapy on wound healing. Therefore, research progress on NSTI has become extremely significant, and close attention should be paid.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 February 2023 and was last updated on 27 February 2023 (registration number INPLASY202320119).

INTRODUCTION

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METHODS

Participant or population: Participants diagnosed with necrotizing soft tissue infections (or necrotizing fasciitis or Fournier gangrene).

Intervention: Studies that compared the use of HBO with no use of HBO.

Comparator: Studies that compared the use of HBO with no use of HBO.

Study designs to be included: clinical trials and observational studies.

Eligibility criteria: (1) Conference abstracts, reviews, animal studies, case reports, editorials, letters, etc.; (2) Duplicate studies; (2) Full text unavailable; (3) Studies from which data could not be extracted; (4) Studies with inappropriate outcomes; (5) Studies with low sample sizes (totaln<10).

Information sources: A literature search was conducted using PubMed, Embase, Web of Science, and the Cochrane Database of Systematic Reviews from their inception to November 28, 2022 to identify relevant studies.

Main outcome(s): The primary outcome was the mortality rate.

Quality assessment / Risk of bias analysis: ROBINS-I TOOL or NOS TOOL.

Strategy of data synthesis: The I² statistic was used to assess the heterogeneity among the studies. If p 50%, a random-effects model was used for meta-analysis; otherwise, a fixed-effects model was applied. Relative risks (RRs) or

standardized mean differences (SMDs) with 95% confidence intervals (CIs) were calculated for dichotomous and continuous outcomes, respectively.

Subgroup analysis: For sub-group difference analysis a chi-squared test was performed. The level of significance was set at 0.05.

Sensitivity analysis: Sensitivity analysis was performed with the one-study remove approach.

Country(ies) involved: China.

Keywords: necrotizing fasciitis, necrotizing soft tissue infection, Fournier gangrene, mortality, complication, hyperbaric oxygen therapy.

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