Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

Mucormycosis: Efficacy of hyperbaric oxygen therapy as an adjunct to conventional antifungal treatment.

Mucormycosis: efficacy of hyperbaric oxygen therapy as an adjunctive therapy to conventional antifungal treatment

Mucormycosis: efficacy of hyperbaric oxygen therapy as complementary therapy to conventional antifungal treatment

Stephanie Gabrielly Dias Gomes [1]
Rachel Catharina de Paula e Silva Caetano [2]

1 Student of Biomedicine at the Higher Education Institute of Brasília - IESB
2 PhD Professor of Biomedicine at the Higher Education Institute of Brasília - IESB.

More favorable clinical outcomes. However, further research is still needed, especially randomized, multicenter clinical trials, to confirm its effectiveness and standardize its application.

ABSTRACT

Mucormycosis is a rare, rapidly progressing invasive fungal infection caused by fungi of the order Mucorales, which mainly affects immunocompromised patients, such as diabetics, transplant recipients, and individuals using corticosteroids. Conventional treatment is based on the administration of antifungals, especially liposomal amphotericin B, associated with surgical debridement; however, mortality rates remain high. This study aimed to analyze, based on the scientific literature, the efficacy of hyperbaric oxygen therapy as an adjuvant therapy to conventional antifungal treatment in the management of mucormycosis. This is an integrative literature review, composed of ten studies published between 2020 and 2026, obtained from the PubMed and SciELO databases. The results demonstrated that hyperbaric oxygen therapy promotes increased tissue oxygenation, stimulates angiogenesis, potentiates the action of antifungals, and favors the recovery of affected tissues. Significant clinical improvement, reduced infection progression, preservation of anatomical structures, and possible decreased mortality were observed, especially in severe or resistant cases. Studies have also reported high recovery rates, ocular preservation, and reduced need for mutilating procedures, demonstrating a satisfactory safety profile and additional benefits in infection control and functional recovery of patients. However, the available evidence is mainly based on case reports, case series, and reviews, which limits the generalizability of the results. It is concluded that hyperbaric oxygen therapy has potential as a complementary strategy in the treatment of mucormycosis, contributing to improved outcomes. **Keywords:** Mucormycosis; Hyperbaric Oxygen Therapy; Fungal Infections; Antifungal Agents; Combination Therapy.

ABSTRACT

Mucormycosis is a rare, invasive fungal infection with rapid progression, caused by fungi of the order Mucorales, affecting mainly immunocompromised patients, such as people with diabetes, transplant recipients, and individuals using corticosteroids. Conventional treatment is based on the administration of antifungal agents, especially liposomal amphotericin B, associated with surgical debridement; however, mortality rates remain high. This study aimed to analyze, based on the scientific literature, the efficacy of hyperbaric oxygen therapy as an adjunctive treatment to conventional antifungal therapy in the management of mucormycosis. This is an integrative literature review comprising 10 studies published between 2020 and 2026, retrieved from the PubMed and SciELO databases. The results demonstrated that hyperbaric oxygen therapy increases tissue oxygenation, stimulates angiogenesis, enhances the efficacy of antifungal agents, and

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

promotes the recovery of affected tissues. Significant clinical improvement, reduced infection progression, preservation of anatomical structures, and a possible reduction in mortality were observed, especially in severe or refractory cases. Studies also reported high recovery rates, ocular preservation, and reduced need for mutilating procedures, demonstrating a satisfactory safety profile and additional benefits in infection containment and patients' functional recovery. However, the available evidence is based mainly on case reports, case series, and reviews, which limits the generalization of the results. It is concluded that hyperbaric oxygen therapy has potential as a complementary strategy in the treatment of mucormycosis, contributing to more favorable clinical outcomes. However, further research is still needed, particularly randomized, multicenter clinical studies, to confirm its efficacy and standardize its use.

Keywords: *Mucormycosis; Hyperbaric Oxygen Therapy; Fungal Infections; Antifungal Agents; Combined Modality Therapy.*

KEYWORDS: Mucormycosis , *Hyperbaric* Oxygen Therapy
Oxygenation), Fungal Infection , *Antifungal* Agent
Combined Modality Therapy

INTRODUCTION

Mucormycosis is a rare, serious, and rapidly progressing fungal infection caused by fungi from the order Mucorales. This disease occurs mainly through the inhalation of spores present in

It is an environmental disease and primarily affects immunocompromised individuals, such as diabetics and patients using [drugs/treatments].

corticosteroid patients, transplant recipients, or those with other conditions that reduce the immune response. One One of the main characteristics of mucormycosis is its high angioinvasive capacity, which causes thrombosis, ischemia, and tissue necrosis, which rapidly worsens the clinical picture and contributes to high mortality rates (Valencia-Caballero *et* al., 2023a; Shen *et* al., 2023).

Treatment of mucormycosis is challenging and involves the administration of antifungals. primarily liposomal amphotericin B, in addition to alternatives such as posaconazole and isavuconazole. In many cases, surgical debridement is also necessary to remove tissue. necrotic tissue, since the infection hinders the action of medications in the affected areas. Even with Despite therapeutic advances, mortality rates remain high due to the rapid evolution of The disease is associated with the difficulty of early diagnosis and limitations in access to appropriate treatment. (Brunet; Rammaert, 2020; Macedo *et* al., 2025).

Given this scenario, hyperbaric oxygen therapy (HBOT) is being investigated as an alternative. This technique complements conventional treatment and consists of inhaling pure oxygen. Pressurized environment, promoting increased tissue oxygenation, improved perfusion, the stimulation of wound healing, potential modulation of the immune response, reduction of hypoxia, in addition

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

to hinder the growth of microorganisms in more oxygenated environments (Huang et al., 2023; Pandey *et* al., 2024).

Studies indicate that HBOT can contribute to infection control, improve tissue recovery, and reduce the need for more aggressive surgical procedures.

Furthermore, there is evidence of clinical improvement in patients who used the therapy in combination with conventional treatment. However, its use still has limitations, such as high cost, low availability and need for specialized structure, which restricts access to it (Valente Aguiar *et* al., 2021).

Despite the limitations related to the high cost, restricted availability, and the need for With specialized infrastructure, hyperbaric oxygen therapy (HBOT) has demonstrated results. Promising as adjunctive therapy in the treatment of mucormycosis. The available evidence They indicate that, when combined with conventional antifungal treatment and surgical interventions, Hyperbaric oxygen therapy (HBOT) can enhance the therapeutic response, contributing to better clinical outcomes. favorable, for containing the infectious progression and for greater structural preservation of the affected tissues. Thus, the analysis of existing data reinforces the role of HBOT as A relevant complementary strategy, capable of promoting more positive clinical outcomes in management. of mucormycosis (Valente Aguiar *et* al., 2021a; Valencia-Caballero *et* al., 2023b; Steinbrink and Miceli, 2021).

The present study aims to analyze the effectiveness of hyperbaric oxygen therapy as a therapy. Adjuvant in the treatment of mucormycosis, when associated with conventional antifungal treatment. and to surgical procedures.

METHODOLOGY

This study consisted of an integrative literature review, developed from the analysis of scientific articles on mucormycosis, focusing on the effectiveness of hyperbaric oxygen therapy (HBOT) as an adjunct therapy to conventional antifungal treatment.

The bibliographic research was conducted between September 2025 and March 2026, using the database. PubMed data was used. Studies published between 2020 and March 2026 were included, without restriction. of language, with the aim of gathering up-to-date scientific evidence on the use of HBOT in management of mucormycosis.

For the search strategy, the Health Sciences Descriptors (DeCS) and the *Medical Subject Headings (MeSH):* Mucormycosis *(Mucormycosis);* Hyperbaric oxygen therapy *(Hyperbaric*

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

Oxygen Therapy; Fungal Infection ; Antifungal Agents ;
Combined Modality Therapy .

The descriptors were combined using the Boolean operators AND and OR, using
strategies such as:

("Mucormycosis" AND *"Hyperbaric Oxygen Therapy")*

("Mucormycosis" AND *"Antifungal Agents"* AND *"Combined Modality Therapy")*

In order to increase the sensitivity and specificity of the search strategy.
The inclusion criteria encompassed original articles, systematic reviews, meta-analyses, and reports.
case studies and clinical guidelines published in open access, written in Portuguese or English, and that
They directly addressed the use of HBOT as a complementary therapy in the treatment of
mucormycosis.

As exclusion criteria, duplicate articles across databases and studies were removed.
publications unrelated to the proposed topic that addressed microorganisms distinct from those not directly related to the proposed theme.
fungi of the order Mucorales, in addition to works published before 2020.

After applying temporal filters and sorting by title and abstracts, the titles were read.
and summaries of the identified studies. Then, the selected articles were submitted for reading.
complete and thorough analysis, resulting in the final inclusion of the works considered relevant for
to compose the present integrative review.

RESULTS

The structured search conducted in the databases initially identified 7,981 studies, which
This corresponds to a general search, without applying any filters. After applying temporal filters and...
Based on an analysis of the titles, considering publications from 2020 to 2026, the number was reduced to 2,790.
studies. Subsequently, the analysis of the titles was refined and articles were removed.
duplicates, resulting in 2,105 publications from the last five years. Then, with the application
For the Boolean operators AND and OR, the total was reduced to 695 publications.

Finally, the previously established inclusion and exclusion criteria were applied, resulting in
Ten studies were selected for inclusion in this integrative review. Duplicate articles were excluded.
Among the databases, studies not directly related to the proposed theme, publications that

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

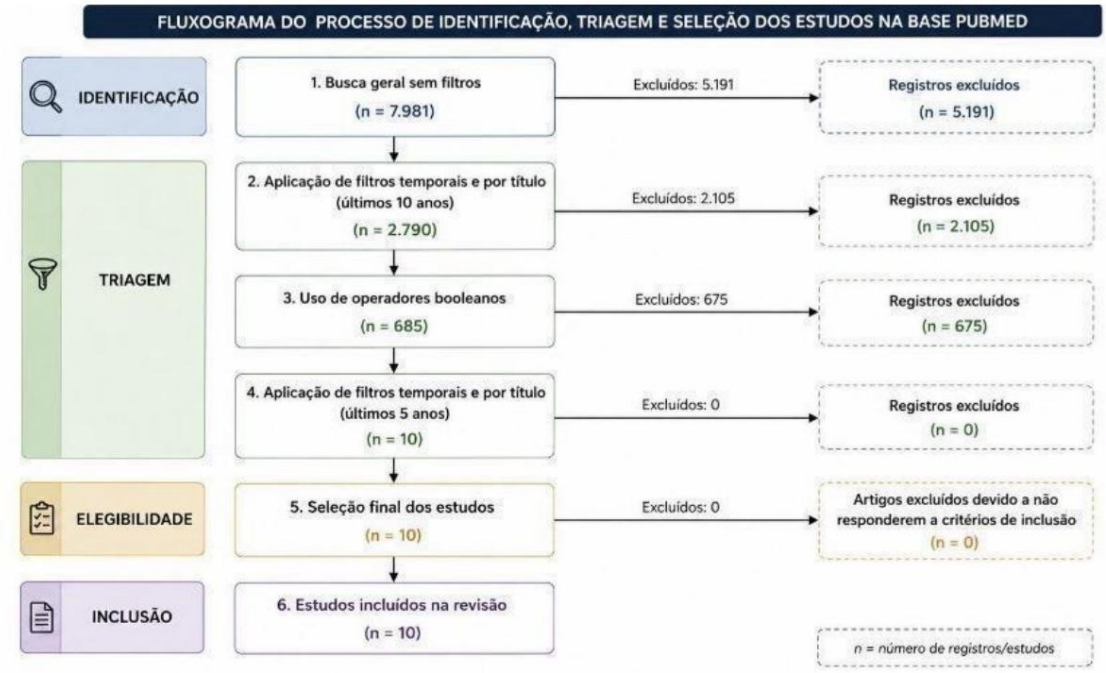
RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

They addressed microorganisms distinct from fungi of the order Mucorales, in addition to works published before 2020.

After reading the titles and abstracts of the selected studies, a careful analysis of the... full articles. After a complete reading of the potentially eligible articles and the application of Based on previously established methodological criteria, 10 studies were selected for analysis. end.

FIGURE 1 – Flowchart of the article selection process for inclusion in the integrative review.



The 10 studies included in this review analyzed aspects related to the use of Hyperbaric oxygen therapy as an adjunct to conventional antifungal treatment in management of mucormycosis, with emphasis on therapeutic efficacy, clinical response rates, and The safety of the procedure and its applicability, particularly in patients immunocompromised.

Additionally, studies have evaluated the potential of hyperbaric oxygen therapy to act. as an adjuvant strategy, enhancing the action of antifungal agents, promoting the tissue oxygenation, favoring repair and angiogenesis processes, in addition to contributing to the containment of infection progression and improvement of clinical outcomes. They were also considering the methodological designs, the characteristics of the population studied and the Clinical outcomes reported after the intervention.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

The characteristics of the included studies, encompassing title, authors, year of publication, objectives and The main results are presented in Table 1.

TABLE 1 – Characteristics of the scientific articles included in the review.

Article title	Authors	Year	Target	Results
Adjunctive hyperbaric oxygen combined with surgery and antifungal therapy for the management of soft tissue mucormycosis: a case report and review of the literature	KAPUSTIN *et al.*	2026	Report the success treatment of a case of osteoarticular mucormycosis post-traumatic in an immunocompetent man, with multidisciplinary approach.	Limb amputation was avoided through repeated debridement, systemic antifungal therapy (L-AmB followed by isavuconazole), and 27 HBOT sessions. The review indicates that HBOT prevented amputation in 62% of reported cases of limb infection.
Brazilian task force for the management of mucormycosis	MACEDO *et al.*	2025	To provide evidence-based guidelines, specific to the Brazilian healthcare system, for the diagnosis and management of mucormycosis.	Aggressive and early surgical debridement is recommended, followed by induction with LAmB (5–10 mg/kg/day), followed by isavuconazole or posaconazole. The importance of rigorous control of hyperglycemia and improved rapid diagnosis in Brazil is highlighted.
Effectiveness of hyperbaric oxygen therapy in the management of COVID-19-associated mucormycosis	PANDEY *et al.*	2024	To evaluate the effectiveness of HBOT as adjuvant therapy in the management of 52 cases of mucormycosis associated with COVID-19 (CAM).	Safe and effective treatment, with 96–98% of patients showing signs of recovery within two weeks. There was 100% ocular preservation in cases of orbital cellulitis, avoiding orbital exenterations.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

The effect of hyperbaric oxygen therapy on the clinical outcomes of necrotizing soft tissue infections: a systematic review and meta-analysis	HUANG *et al.*	2023	To conduct a systematic review and meta-analysis to determine the effectiveness of HBOT in the treatment of necrotizing soft tissue infections (NSTI).	Analysis of 23 studies (over 49,000 patients) revealed significantly lower mortality in the HBOT group (10.6% vs. 25.6% in the control group). HBOT was associated with lower mortality. incidence of multiple organ dysfunction syndrome (MODS).
The outcome and the risk factors of mucormycosis among patients with hematological diseases: a systematic review and meta-analysis	SHEN *et al.* 202	3	Determine the rates of Mortality and risk factors associated with mucormycosis in patients with in hematological disorders.	Overall mortality rate of 61%. The combination of surgical and medical treatment significantly improved survival (49% vs. 67% with the medical treatment alone). Disseminated disease presented a higher risk of death than isolated infection.
Hyperbaric oxygen therapy as an adjunctive treatment for COVID-19-associated mucormycosis: a report of two cases	VALENCE - CABALLERO *et al.*	2023	To report the first two cases of mucormycosis associated with COVID-19 (CAM) in Peru in which HBOT was added to standard treatment.	Both patients showed clear clinical, endoscopic, and tomographic improvement after 30 sessions of HBOT, following an initial improvement with conventional medical-surgical treatment alone. There was no recurrence after six months of follow-up.
A general overview of the hyperbaric oxygen therapy: applications, mechanisms, and translational opportunities	ORTEGA *et al.*	2021	To discuss the physiological relevance of oxygen and the therapeutic basis of HBOT, bringing together current indications, mechanisms of action, and potential areas of research (inflammation, COVID-19, and cancer).	OHB increases Significantly lowers oxygen levels in the blood and tissues (hyperoxemia), of regardless of transport by hemoglobin. It exhibits immunomodulatory antimicrobial and properties, in addition to stimulating angiogenesis. the Currently, 14 nominations have been approved.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

Hyperbaric oxygen treatment: results in seven patients with severe bacterial postoperative central nervous system infections and refractory mucormycosis	BRAVE AGUIAR *et al.*	2021	To evaluate the use of HBOT in seven patients with severe postoperative CNS infections and refractory mucormycosis.	HBOT enabled the resolution of the infection in six of the seven patients, avoiding further surgical interventions after the start of therapy, with a satisfactory safety profile.
Mucormycosis	STEINBRINK; MICELI	2021	To provide a comprehensive review of the microbiology, epidemiology, diagnosis, and management of mucormycosis.	It emphasizes that a multifaceted approach (elimination of predisposing factors, aggressive surgery, and antifungals such as L-AmB) is essential to improve survival. Isavuconazole and posaconazole are essential for escalation or rescue therapies.
Mucormycosis treatment: recommendations, latest advances, and perspectives	BRUNET; RAMMAERT	2020	To provide an update on the management of mucormycosis, focusing on the most recent recommendations, advances, and therapeutic perspectives. and	Liposomal amphotericin B (LAmB) is recommended as a first-line treatment when used in conjunction with surgery. Isavuconazole and posaconazole are second-line options. Doses of 10 mg/kg of L-AmB showed better response rates at 12 weeks, although with greater renal toxicity.

DISCUSSION

The discussion of the results of this literature review reveals a complex scenario, however...
Promising research on the role of hyperbaric oxygen therapy (HBOT) in the treatment of mucormycosis.
Analysis of the studies allows us to answer the research question, indicating that OHB, when
Combined with conventional treatment with antifungals and surgery, it can contribute to better outcomes.
survival rates and favorable clinical outcomes for patients, compared to treatment.
isolated. These benefits were most evident in diabetic patients and in cases of mucormycosis.
cutaneous or soft tissue.

w

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

According to Pandey et al. (2024), the use of HBOT in 52 cases of mucormycosis associated with COVID-19 It showed recovery rates ranging between 96% and 98% in two weeks, in addition to achieving 100% ocular preservation, avoiding orbital exenterations that are frequently required in conventional treatment. Similarly, ValenciaCaballero et al. (2023) report a response satisfactory therapeutic results and significant improvement after the inclusion of HBOT, including in patients who Initially, they did not respond well to traditional treatment.

In cases of refractory infections of the Central Nervous System (CNS), Valente Aguiar et al. (2021) They demonstrated that HBOT enabled the resolution of the infection in six of the seven patients evaluated. avoiding further surgical interventions after the start of therapy. In addition, Kapustin et al. (2026) They described a case of mucormycosis in soft tissues in which limb amputation was avoided. due to the multidisciplinary treatment associated with HBOT. The authors also highlighted that Literature reviews indicate that tissues were preserved in approximately 62% of the cases analyzed.

However, some authors present a more cautious view regarding therapy. Steinbrink and Miceli (2021) state that, despite the potential of HBOT in diabetic patients or those with infections Regarding skin conditions, there is still insufficient clinical evidence to recommend its routine use. In this way, Brunet and Rammaert (2020) highlight the absence of randomized clinical trials and controlled, which makes definitive confirmation of the therapy's superiority difficult.

The positive results observed can be explained by the physiological mechanisms of HBOT. As described by Ortega et al. (2021), the therapy significantly increases oxygenation. tissue, reversing the hypoxia caused by the fungal invasion of Mucorales. In addition, it stimulates the antimicrobial action of neutrophils through the production of reactive oxygen species and nitrogen, contributing to the inhibition of fungal growth and enhancing the action of antifungals, such as amphotericin B.

Among the main limitations of the studies analyzed, it is noteworthy that a large part of the research... It has a retrospective character and is based on case reports or series, which reduces the level of... scientific evidence. Macedo et al. (2025) and Huang et al. (2023) emphasize this limitation. In addition Furthermore, Shen et al. (2023) highlight that the differences in therapeutic protocols and time of Follow-up data makes it difficult to compare mortality results between studies. Also There is a possibility of publication bias, since cases with favorable results tend to be presented more accurately. to be reported more often than those without therapeutic success.

In the field of biomedicine, the findings reinforce the importance of rapid laboratory diagnosis. and necessary. According to Macedo et al. (2025), techniques such as PCR and histopathology are fundamental for

w

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

Early diagnosis and immediate initiation of treatment. In this context, the biomedical professional plays a crucial role.
plays an essential role in multidisciplinary work, assisting in monitoring fungal load, of
Systemic effects of hyperoxia and associated risk factors, such as hyperglycemia. For the
For the future, the development of randomized, multicenter clinical trials is fundamental.
allow for the establishment of more standardized protocols for the use of hyperbaric oxygen therapy (HBOT).
In mucormycosis, determining the ideal time to start therapy and the appropriate amount of...
sessions. According to Kapustin et al. (2026), new diagnostic strategies, such as real-time PCR
MALDI-TOF, when combined with other therapies, can help reduce the high risk of breast cancer.
morbidity and mortality associated with the disease.

In summary, HBOT proves to be an important complementary therapy in the treatment of
mucormycosis, contributing to improved prognosis, preservation of tissue integrity and
The patients experienced a favorable clinical evolution. However, further studies are still needed to...
to confirm its effectiveness and standardize its application, considering the clinical particularities of each case.
case.

FINAL CONSIDERATIONS

This literature review concluded that hyperbaric oxygen therapy (HBOT), when
When combined with conventional antifungal treatment and surgical debridement, it shows potential.
as adjunctive therapy in the management of mucormycosis. The studies analyzed demonstrated progress
Favorable clinical outcome, reduced infectious progression, preservation of anatomical structures, and possible
Reduced mortality compared to conventional treatment alone.

Thus, the findings corroborate the initial hypothesis of the study, indicating that the association
Switching from HBOT to conventional treatment may lead to improved prognosis, especially in cases...
severe or refractory conditions. The proposed objectives were also achieved: identifying the main
Risk factors for mucormycosis, including the limitations of conventional treatment and
analyzing the benefits and challenges of HBOT as a complementary therapy. However, the literature
Scientific research still presents important limitations, such as the scarcity of randomized studies and the
The absence of standardized protocols necessitates further research.
Multicenter studies, with a higher level of scientific evidence, to confirm the effectiveness of the therapy.

In the context of biomedicine, this study reinforces the importance of early diagnosis and intervention.
multidisciplinary approach and the adoption of integrated therapeutic strategies in the management of infections.

w

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

invasive fungal infections. The work also has scientific and social relevance by bringing together evidence. about a complementary therapeutic approach, capable of promoting a more positive clinical outcome. satisfactory and better outcomes in patients with mucormycosis.

Thus, this review contributes to broadening the understanding of the applicability of oxygen therapy. Hyperbaric therapy in the context of mucormycosis, highlighting its potential for tissue recovery and... infection control. Continued research in this area may lead to the development of more effective and individualized therapeutic strategies, promoting important advances in Clinical practice and care for immunocompromised patients.

REFERENCES

Brunet, K., Rammaert, B., *et al.* (2020). Mucormycosis treatment: recommendations, latest advances, and perspectives. https://www.sciencedirect.com/science/article/pii/S1156523320301190 Huang, C., Zhong, *et al.* (2023). The effect of hyperbaric oxygen therapy on the clinical outcomes of necrotizing soft tissue infections: a systematic review and meta-analysis. In World Journal of Emergency Surgery (Vol. 18, Issue 1). BioMed Central Ltd. https://doi.org/10.1186/s13017-023-00490-y

Kapustin, P. *et al.* (2026). Adjunctive hyperbaric oxygen combined with surgery and antifungal therapy for the management of soft tissue mucormycosis: a case report and review of the literature. Journal of Medical Mycology, 36(1). https://doi.org/10.1016/j.mycmed.2026.101610

Macedo, P. et al. (2025). Brazilian task force for the management of mucormycosis. Brazilian Journal of Infectious Diseases, 29(6). https://doi.org/10.1016/j.bjid.2025.104579

Ortega, MA *et al* (2021). A general overview of the hyperbaric oxygen therapy: Applications, mechanisms, and translational opportunities. In Medicine (Lithuania) (Vol. 57, Issue 9). MDPI. https://doi.org/10.3390/medicina57090864

Pandey, S., *et al.* (2024). Effectiveness of hyperbaric oxygen therapy in the management of COVID-19-associated mucormycosis. Medical Gas Research, 14(2), 87–88. https://doi.org/10.4103/2045-9912.385442

Shen, M., *et al.* (2023). The outcome and the risk factors of mucormycosis among patients with hematological diseases: a systematic review and meta-analysis. In Frontiers in Medicine (Vol. 10). Frontiers Media SA. https://doi.org/10.3389/fmed.2023.1268840

Steinbrink, *et al.* (2021). Mucormycosis. In Infectious Disease Clinics of North America (Vol. 35, Issue 2, pp. 435–452). WB Saunders. https://doi.org/10.1016/j.idc.2021.03.009

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.1 2026 | Submission: 05/15/2026 | Accepted: 05/18/2026 | Publication: 05/21/2026

Valencia-Caballero, V., *et al.* (2023). Hyperbaric oxygen therapy as an adjunctive treatment for COVID-19-associated mucormycosis: a report of two cases. Revista Peruana de Medicina Experimental y Salud Pública, 40(1), 105–110. https://doi.org/10.17843/rpmesp.2023.401.11980

AGUIAR, Pedro Valente *et al.. Hyperbaric oxygen treatment: results in 7 patients with severe postoperative central nervous system infections due to bacterial and refractory mucormycosis.* 2021.: Aguiar_CNSInfections_2020_94737.pdf

w

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.