Cost-effectiveness of photobiomodulation therapy for the prevention and management of cancer treatment toxicities: a systematic review

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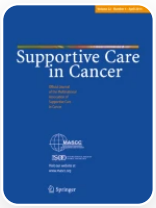

Supportive Care in Cancer

Aims and scope

Submit manuscript

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Abstract

Purpose

To identify and summarize the evidence on the cost-effectiveness of photobiomodulation (PBM) therapy for the prevention and treatment of cancer treatment-related toxicities.

Methods

This systematic review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (PRISMA) and Meta-analysis Of Observational Studies in Epidemiology (MOOSE). Scopus, MEDLINE/PubMed, and Embase were searched electronically.

Results

A total of 1490 studies were identified, and after a two-step review, 4 articles met the inclusion criteria. The included studies analyzed the cost-effectiveness of PBM therapy used in the context of lymphedema for breast cancer and oral mucositis (OM) induced by chemotherapy and radiotherapy. Better outcomes were associated with PBM therapy. The incremental cost-effectiveness ratio ranged from 3050.75 USD to 5592.10 USD per grade 3–4 OM case prevented. PBM therapy cost 21.47 USD per percentage point reduction in lymphedema in comparison with 80.51 USD for manual lymph drainage and physical therapy.

Conclusion

There is limited evidence that PBM therapy is cost-effective in the prevention and treatment of specific cancer treatment-related toxicities, namely, OM and breast cancer-related lymphedema. Studies may have underreported the benefits due to a lack of a comprehensive cost evaluation. This suggests a wider acceptance of PBM therapy at cancer treatment centers, which has thus far been limited by the number of robust clinical studies that demonstrate cost-effectiveness for the prevention and treatment of toxicities.

Data availability

The authors confirm that the data supporting the findings of the study are available within the article and supplementary materials.

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Ethics declarations

Conflict of interest

The authors declare that they have no conflict of interest.

Additional information

Publisher's note

Supplementary Information

ESM 1

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ESM 2

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ESM 3

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