CONTEXT AND POLICY ISSUES

Mental illness, including major depressive episode, bipolar disorder, generalized anxiety disorder, alcohol abuse, and other drug abuse or dependence, affects approximately 1 in 3 Canadians at some point in their lives. Depression is the most common mood disorder, with a lifetime incidence of 11.3%, while the lifetime incidence of generalized anxiety disorder is 8.7%. Hyperbaric oxygen therapy (HBOT) is administered inside a treatment chamber and provides the patient with 100% oxygen at high atmospheric pressures. There have been a number of medical conditions in which treatment with hyperbaric oxygen has been investigated, including, but not limited to, treatment of carbon monoxide poisoning, improved wound healing, and decompression sickness and air embolism due to ascending too quickly in aviation or deep water diving. It has been hypothesized that hyperbaric oxygen therapy may be beneficial in the treatment of certain mental health disorders such as post-traumatic stress disorder occurring in the setting of a traumatic brain injury. In an uncontrolled pre-post study, a group of patients with blast-induced post-concussion syndrome with or without post-traumatic stress disorder demonstrated improvement in a number of physical, psychological, and cognitive measures within a week of completing 30 days of HBOT. The proposed mechanism of action of hyperbaric oxygen in traumatic brain injury is that increasing oxygenation of blood and tissues to supraphysiological levels results in the improvement of neuronal functioning by the reactivation of metabolic or electrical pathways. Stem cell mobilization to sites of injury, immune modulation and impact on neurotransmitters have also been hypothesized as possible mechanisms. Currently, the value of using hyperbaric oxygen therapy in the treatment of mental illness has not been well-established. The purpose of this report was to review existing studies on the use of hyperbaric oxygen therapy for adults with post-traumatic stress disorder, generalized anxiety disorder, or depression.
RESEARCH QUESTIONS

1. What is the clinical effectiveness of hyperbaric oxygen therapy for the treatment of adults with post-traumatic stress disorder?
2. What is the clinical effectiveness of hyperbaric oxygen therapy for the treatment of adults with generalized anxiety disorder?
3. What is the clinical effectiveness of hyperbaric oxygen therapy for the treatment of adults with depression?

KEY FINDINGS

No relevant literature regarding the clinical effectiveness of hyperbaric oxygen for the treatment of adults with post-traumatic stress disorder, generalized anxiety disorder, or depression was identified.

METHODS

Literature Search Strategy

A limited literature search was conducted on key resources including PubMed, Ovid PsycINFO, The Cochrane Library (2014, Issue 7), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2004 and July 29, 2014.

Selection Criteria and Methods

One reviewer screened the titles and abstracts of the retrieved publications and evaluated the full-text publications for the final article selection, according to the selection criteria outlined in Table 1.

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<tr>
<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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<td><strong>Comparator</strong></td>
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<td><strong>Study Designs</strong></td>
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Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, if they were duplicate publications of the same study or were published prior to 2004.

SUMMARY OF EVIDENCE

Quantity of Research Available

The literature search yielded 267 citations. No additional studies were identified by searching the grey literature. After screening titles and abstracts, seven potentially relevant studies were selected for full-text review. Of the seven potentially relevant reports, none of them met the selection criteria. Five of the seven reports that were excluded from this review examined participants that were not relevant to the population defined in the selection criteria. Of the other two reports excluded, one did not include a comparator group and the other included a comparative medication that is not currently available in Canada. Appendix 1 describes the PRISMA flowchart of the process for study selection.

Summary of Findings

There was no evidence found on the clinical effectiveness of hyperbaric oxygen therapy for the treatment of adults with post-traumatic stress disorder, generalized anxiety disorder, or depression. Therefore no summary can be provided.

CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING

No relevant literature was identified; therefore, no conclusions can be drawn about the clinical effectiveness of hyperbaric oxygen therapy for the treatment of adults with post-traumatic stress disorder, generalized anxiety disorder, or depression.

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REFERENCES


APPENDIX 1: Selection of Included Studies

267 citations identified from electronic literature search and screened

260 citations excluded

7 potentially relevant articles retrieved for scrutiny (full text, if available)

0 potentially relevant reports retrieved from other sources (grey literature, hand search)

7 potentially relevant reports

7 reports excluded:
- irrelevant population (5)
- irrelevant comparator (2)

0 reports included in review