

HYPERBARIC OXYGEN THERAPY FOR CHRONIC BRAIN INJURY

Undersea and Hyperbaric Medical Society Position Statement
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The Undersea and Hyperbaric Medical Society (UHMS), founded in 1967, is a voluntary professional medical and scientific organization dedicated to the appropriate application of hyperbaric oxygen (HBO₂) therapy. As a part of that aim, the UHMS monitors and regularly reviews the published medical literature for reports on HBO₂ therapy, in an attempt to provide guidance to the medical community as to those conditions that are likely to benefit from hyperbaric treatment. Supporting evidence for use of HBO₂ treatment typically includes demonstration of a logical pathophysiologic mechanism by which oxygen would be expected to be beneficial, animal experimentation in those instances that an appropriate disease model can be developed, and clinical results, including case reports, case series, and prospective clinical trials. If the published evidence is felt to be sufficient, the UHMS recommends consideration of HBO₂ treatment for selected patients with the specific condition. It should be noted that the UHMS is not a regulatory agency and that Society recommendations are intended as guidance.

The UHMS is aware of current interest in the use of HBO₂ for treatment of chronic brain injury, both traumatic and non-traumatic. Data currently available include a number of individual case reports, some small case series, and one prospective randomized trial. While the results from these case reports and case series tend to suggest a beneficial role for HBO₂ therapy in chronic brain injury, the prospective trial, which examined the effect of HBO₂ on children with cerebral palsy, found no benefit of HBO₂ treatment. Since prospective randomized trials are generally accepted to be the most reliable form of clinical research, the weight of the currently available scientific literature is not felt to support an endorsement of HBO₂ for chronic brain injury.

A formal, objective review of the available published literature on the topic was recently completed by the the Oregon Health and Science University (OHSU) Evidence Based Practice Center, funded by a grant from the US Agency for Healthcare Research and Quality. In brief, the agency concluded, "There is insufficient evidence to determine whether the benefits of hyperbaric oxygen therapy (HBOT) outweigh the potential harms in patients who have traumatic or non-traumatic brain injury or stroke, according to researchers at AHRQ's Oregon Health & Science University Evidence-based Practice Center. Additionally, they found insufficient evidence to determine whether the use of HBOT improves functional outcomes in children with cerebral palsy or reduces mortality in stroke patients. The evidence about morbidity in stroke patients is conflicting. Select to access the summary <http://www.ahrq.gov/clinic/epcsums/hypoxsum.htm> summary *Hyperbaric Oxygen Therapy for Brain Injury, Cerebral Palsy and Stroke.*"

Nonetheless, the UHMS believes that this topic warrants continued monitoring. The UHMS supports the continued performance of well-designed clinical trials in this area, especially those that are prospective, randomized, and controlled. If sufficient

convincing data demonstrate that HBO₂ treatment is associated with favorable risk-benefit and cost-benefit ratios for the chronic sequelae of traumatic or non-traumatic brain injury, the UHMS will endorse application of hyperbaric therapy for the specific supported indications. The Society feels that there is insufficient supportive evidence to warrant such an endorsement at present.