

[home](#) [about ingenta](#) [about this site](#) [site map](#) [help](#) [contact us](#)
guest

article summary

mark
▶ full text

quick ingenta search:

online articles
 fax/ariel articles

search:

search ingenta

browse publications

results

my files:

saved searches

marked list

shopping cart

manage my ingenta

track orders

user name

password

remember me

▶ enter

Athens
[click here to login via Athens](#)

A review of the scientific evidence on the treatment of traumatic brain injuries and strokes with hyperbaric oxygen

▶ **Brain Injury** ▶ **1 January 2003, vol. 17, no. 3, pp. 225-236(12)**

Abstract:
Objective: This review sought to determine the strength of the scientific evidence relating to the therapeutic use of hyperbaric oxygen for traumatic brain injury or stroke. In order to reduce the possibility of omitting relevant human clinical trials, parallel searches of the Medline, HealthStar and Embase databases were undertaken, and input was sought from local experts in hyperbaric medicine as well as from a widely noted proponent of this therapy. Papers retrieved were reviewed to ensure that they reported the results of comparative clinical trials and were then reviewed by a panel of scientists. Papers were scrutinized for methodological flaws, and the clinical significance of the results was examined.

Background: Following severe traumatic brain injury, cognitive improvement is most dramatic the first six months following injury and largely stasis after 18 months. Anecdotal reports exist that attest to the efficacy of HBOT to improve posttraumatic neurologic deficits by increasing blood flow in the ischemic penumbra despite protocol differences. CBF, speech, neurological and cognitive testing have not been studied serially in patients undergoing HBOT for chronic stable TBI.

Methods: Five patients with TBI, at least 3 years post injury, underwent 120 HBOT's at 1.5 ATA for 60 minutes. They received 80 HBOT's, a 5 month rest, and a second set of 40 HBOT's. Patients were studied sequentially to determine HBO's effects on: CBF, speech fluency, neurologic, cognitive and progressive exercise testing. Six TBI controls were not treated with HBOT, but underwent serial SPECT scanning to study temporal alterations in cerebral blood flow. Five non-TBI controls underwent SPECT scanning, one HBOT, and a repeat scan to study HBOT influence on cerebral blood flow in normal subjects. SPECT brain scans were performed serially on the HBO treated group. Scans were spatial and intensity normalized and subjected to statistical parametric mapping.

Results: Serial SPECT imaging showed: TBI controls had no significant consistent change in CBF over time; non-TBI controls had essentially no influence from one HBOT upon CBF; treated TBI patients had permanent increases in penumbral area CBF and a regression to a mean CBF range. In the HBO treated group, no changes were seen in progressive exercise and neurologic testing. Speech fluency universally improved, as did group mean scores of memory, attention, and executive function. Improvement peaked at 80 HBOT, suggesting a possible maximum length of treatment between 80 and 120 HBOT.

Conclusion: The findings of this prospective pilot study suggest that HBOT at 1.5 ATA is a promising therapy to achieve cognitive improvement and permanently improve the penumbral brain blood flow in chronic stable TBI where no improvement would have been expected.

Document Type: Research article **ISSN:** 0269-9052

SICI (online): 0269-9052(20030101)17:3L:225;1-

Publisher: ▶ Taylor and Francis Ltd