

The Effect Of Hyperbaric Oxygen Therapy On Improvement Of Speech, Language, And Cognitive Deficits Observed In A Traumatic Brain Injury

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BACKGROUND:

The effectiveness of hyperbaric oxygen (HBO) therapy has been controversial as it concerns traumatic brain injury (TBI) patients. In this report we present the results of HBO treatment of a TBI patient presenting with right side dominant hemiparesis and some speech impairment.

MATERIALS AND METHODS:

The patient, 15 months post-traumatic brain injury, was treated with HBO at 1.5-2 ATA for 60-90 min once or twice daily for a total of 48 treatments. Prior to and after the HBO treatment the patient was evaluated for speech and language deficits with the Boston Diagnostic Aphasia Examination (BDAE) and for the cognitive deficits with the Ross Information Assessment-Second Edition (RIPA-2).

RESULTS:

The BDAE showed improvements in subtests of Conversational and Expository Speech, 42% proficiency level to 71% in melodic line, 85% to 100% in phrase length, 85% to 100% in grammatical form but no effect (42%) in articulatory agility. In Auditory Comprehension there was a slight deficit in following commands, 93% improved to 100%. In Oral Expression there was improvement in verbal agility, 78% to 93%; in recitation, singing and rhythm, 83% to 100%; and in repetition in words, 80% to 100%. No deficits were observed in Understanding Written Language. In the cognitive deficits testing by RIPA-2 showed improvement in immediate memory, 50%ile to 84%ile; recent memory, 50%ile to 84%ile; orientation to environment, 50%ile to 91%ile; and recall of general information, 84%ile to 95%ile. HBO had no effect on recent memory (50%ile), remote memory (50%ile), spatial orientation (91%ile), auditory processing and retention (91%ile). HBO had a slight negative effect on problem solving and abstract reasoning, 75%ile to 64%ile and on organization, 84%ile to 63%ile.

CONCLUSIONS:

The results of this case study suggest that HBO has the potential to improve speech, language and cognitive deficits in TBI patients.