

Hyperbaric Oxygen Therapy For Radiation-Induced Brain Injury In Children.

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BACKGROUND: Radiation-induced necrosis (RIN) of the brain is a complication associated with the use of aggressive focal treatments such as radioactive implants and stereotactic radiosurgery. In an attempt to treat patients with central nervous system (CNS) RIN, ten patients received hyperbaric oxygen treatment (HBOT). **METHODS:** Patients presented with new or increasing neurologic deficits associated with imaging changes after radiotherapy.

Necrosis was proven by biopsy in eight cases. HBOT was comprised of 20-30 sessions at 2.0 to 2.4 atmospheres, for 90 minutes-2 hours. Sites of RIN included the brain stem (n = 2), posterior fossa (n = 1), and supratentorial fossa (n 7). Histologic types included brain stem glioma (n = 2), ependymoma (n = 2), germinoma (n = 2), low grade astrocytoma (n = 1), oligodendroglioma (n = 1), glioblastoma multiforme (n = 1), and arteriovenous malformation (n = 1).

RESULTS: Initial improvement or stabilization of symptoms and/or imaging findings were documented in all ten patients studied and no severe HBOT toxicity was observed. Four patients died, with the cause of death attributed to tumor progression. Five of six surviving patients were improved by clinical and imaging criteria; one patient was alive with tumor present at last follow-up.

CONCLUSIONS: HBOT may prove to be an important adjunct to surgery and steroid therapy for CNS RIN. [Cancer 1997 Nov 15;80(10):2005-12]