

Hyperbaric Oxygen Therapy and the Eye

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Butler, Jr., FK, Hagan C, Murphy-Lavoie H. Hyperbaric Oxygen Therapy and the Eye. *Undersea Hyperb Med* 2008; 35(5): 327-381. Hyperbaric oxygen therapy (HBOT) is a primary or adjunctive therapy for a variety of medical disorders including some involving the eye. This paper is the first comprehensive review of HBOT for ocular indications. The authors recommend the following as ocular indications for HBOT: decompression sickness or arterial gas embolism with visual signs or symptoms, central retinal artery occlusion, ocular and periocular gas gangrene, cerebro-rhino-orbital mucormycosis, periocular necrotizing fasciitis, carbon monoxide poisoning with visual sequelae, radiation optic neuropathy, radiation or mitomycin C-induced scleral necrosis, and periorbital reconstructive surgery. Other ocular disorders that may benefit from HBOT include selected cases of ischemic optic neuropathy, ischemic central retinal vein occlusion, branch retinal artery occlusion with central vision loss, ischemic branch retinal vein occlusion, cystoid macular edema associated with retinal venous occlusion, post-surgical inflammation, or intrinsic inflammatory disorders, periocular brown recluse spider envenomation, ocular quinine toxicity, Purtscher's retinopathy, radiation retinopathy, anterior segment ischemia, retinal detachment in sickle cell disease, refractory actinomycotic lacrimal canaliculitis, pyoderma gangrenosum of the orbit and refractory pseudomonas keratitis. Visual function should be monitored as clinically indicated before, during, and after therapy when HBOT is undertaken to treat vision loss. Visual acuity alone is not an adequate measure of visual function to monitor the efficacy of HBOT in this setting. Ocular examinations should also include automated perimetry to evaluate the central 30 degrees of visual field at appropriate intervals. Interpretation of the literature on the efficacy of HBOT in treating ocular disorders is complicated by several factors: frequent failure to include visual field examination as an outcome measure, failure to adequately address the interval from symptom onset to initiation of HBOT, and lack of evidence for optimal treatment regimens for essentially all ocular indications. Because some ocular disorders require rapid administration of HBOT to restore vision, patients with acute vision loss should be considered emergent when they present. Visual acuity should be checked immediately, including vision with pinhole correction. If the patient meets the criteria for emergent HBOT outlined in the paper, normobaric oxygen should be started at the highest inspired oxygen fraction possible until arrangements can be made for HBOT.