

OPHTHALMOLOGY LITERATURE

Surv Ophthalmol. 2008 Mar-Apr;53(2):112-20.

The use of hyperbaric oxygen therapy in ophthalmology. - Oguz H, Sobaci G.

Hyperbaric oxygen therapy is a primary or adjuvant therapeutic method used in treatment of various acute or chronic disorders. Currently, eye diseases are among the off-label use of hyperbaric oxygen. However, there is an increasing body of evidence showing its safety and efficacy in retinal artery occlusion, cystoid macular edema secondary to retinal vein occlusion, scleral thinning and necrosis faced after pterygium surgery, orbital rhino-cerebral mucormycosis, nonhealing corneal edema, and anterior segment ischemia. Its potential to treat some blinding disease has also been pointed out in recent studies. This article constitutes an up-to-date summary of knowledge and therapeutic use of hyperbaric oxygen, and aims to contribute understanding of current and potential use of hyperbaric oxygen therapy in ophthalmology.

Graefes Arch Clin Exp Ophthalmol. 2008 Jan;246(1):93-8. Epub 2007 Aug 3.

Slowing the degenerative process, long lasting effect of hyperbaric oxygen therapy in retinitis pigmentosa.

Vingolo EM, Rocco M, Grengo P, Salvatore S, Pelaia P.

BACKGROUND: Retinitis pigmentosa (RP) therapy is still an unsolved challenge. Recent reports have underlined that hyperbaric oxygen (HBO) therapy could play a role in slowing the retinal degenerative process. The aim of this study was to assess the efficacy of HBO therapy on visual function in RP patients. **METHODS:** We performed a single-center, comparative, longitudinal case-controlled randomized clinical trial, which lasted 10 years. We randomly divided RP patients into two groups. Group 1, the control group, consisted of 44 RP patients (21 males and 23 females; mean age 35.5) who took Vitamin A. Group 2, with 44 RP patients (21 males and 23 females; mean age 35,02), underwent HBO therapy. No statistically significant difference was found at the beginning of the study between the two groups. We compared the results concerning visual acuity, Goldmann perimetry, static perimetry Humphrey field analyzer (HFA), and electroretinogram (ERG) obtained in the two groups at 5 and 10 years follow-up. Statistical analysis was performed with Kaplan-Meier life-table with the evaluation of log-rank coefficient. **RESULTS:** At 5 year follow-up, 87.5% of group 2 patients preserved 80% of the initial visual acuity, while the same result was achieved in only 70.4% of group 1 patients ($X(2) = 8.2$; $p < 0.01$); at 10 year follow-up, 63.33% of group 2 patients preserved 80% of the initial visual acuity, while the same percentage of residual visual acuity was maintained in 40% of group 1 patients ($X(2) = 3.22$; $p = 0.05$). At 10 year follow-up, Goldmann perimetry (target I4e) did not change in 31.6% of group 2 and in 10.5% of group 1; evaluation of mean defect (MD) with static perimetry HFA showed that 53% of HBO patients had 80% of residual mean sensitivity compared to 23.5% of the control group patients ($X(2) = 4.72$; $p = 0.035$). ERG b-wave mean values at the end of the protocol were significantly higher in the HBO treated group ($X(2) = 4.53$; $p = 0.013$). **CONCLUSION:** Our study underlines that HBO therapy can be a safe alternative approach to RP patients, contributing to the stabilization of their visual function concerning visual acuity, visual field, and ERG responses while waiting for a definite cure.



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Undersea Hyperb Med. 2007 Sep-Oct;34(5):315-9.

Clinical case report: treatment of a central retinal vein occlusion with hyperbaric oxygen.

Wright JK, Franklin B, Zant E.

A case of retinal central vein occlusion (CRVO) in a 43-year-old man is presented in which hyperbaric oxygen (HBO2) was used as the only treatment method. CRVO is a relatively common cause of visual loss, with hypertension, diabetes, glaucoma and hypercoagulable conditions identified as risk factors. The patient in this report had none of these risk factors and declined treatments other than hyperbaric oxygen. HBO2 was effective in sustaining the ischemic retina and controlling retinal edema until the retina revascularized and vision stabilized. The initial visual acuity in the left eye was 20/200 (corrected), and after two hyperbaric treatments it was 20/30 (corrected). Following three months of HBO2 treatments the vision stabilized to 20/20 (corrected) in the affected eye. Treatment considerations in using HBO2 as adjunctive therapy for CRVO are early institution of treatment, and continuation of HBO2 until the retinal edema has resolved and vision has stabilized.