

# Hyperbaric Oxygen Therapy reduces visual field defect after macular hole surgery.

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Kurok AM; Kitaoka T; Taniguchi H; Amemiya T

Department of Ophthalmology and Visual Sciences, Nagasaki University School of Medicine, Nagasaki City, Japan.

## **BACKGROUND AND OBJECTIVE:**

One of the serious complications that may arise after macular hole (MH) surgery is a temporal visual fields (TVF) defect. We hypothesized that hyperbaric oxygen (HBO) therapy improves the visual field (VF) in these patients.

## **MATERIALS AND METHODS:**

Vitrectomy for MH was performed on 73 eyes from 1994 to 1997. TVF defect was detected in 19 eyes and, of that 19, 12 patients were followed. Seven patients were treated with HBOT therapy and 5 were controls. HBOT was performed for approximately 110 minutes a day with 100% oxygen inhalation and a maximum of 2.8 atmospheric pressure. This continued for 20 days. The preoperative VF determined by kinetic perimetry was considered to be 100%, and the VF following HBOT therapy was compared with that standard.

## **RESULTS:**

We detected VF defect (postoperative VF area average 71.9+/-12.8% of the preoperative VF). In all 5 patients who had no HBOT therapy, TVF defects remained, while the TVF recovered remarkably in all patients treated with HBOT therapy. The VF recovered to 81.7+/-16.7% of the preoperative VF after 3 days of HBOT, and to 91.6+/-15.8% months after HBOT therapy.

## **CONCLUSION:**

We speculated that the cause of TVF defect is likely to be chorioretinal circulation disturbance during surgery, and that HBOT activates the retinal cells and improves VF. We conclude that HBOT is useful in the treatment of TVF defect after macular hole surgery.