Acute phase treatment in central retinal artery occlusion: hyperbaric oxygen therapy, thrombolysis or even both?

Daniel Ferreira¹, Carolina Soares¹,², João Tavares-Ferreira³, Tiago Fernandes⁴, Rui Araújo¹,², and Pedro Castro¹,²,⁵

From the Lisbon Stroke Summit, Lisbon, Portugal. 5–6 April 2019.

Abstract

Background: Central retinal artery occlusion (CRAO) is a neuro-ophthalmological emergency. Evidence shows a finite time window for acute interventions aimed at retinal sparing. No guideline-endorsed evidence for acute treatment is available with current options including revascularization (e.g. intravenous thrombolysis - IVT) and retinal oxygenation (e.g. hyperbaric oxygen therapy - HBOT) therapies.

Objective: We report a 3-case series of patients with a CRAO who underwent acute phase treatment with either HBOT, IVT or combined IVT and HBOT.

Clinical cases: Case 1: A 35-year-old female presented with an acute visual loss in her right eye (OD). Fluorescein angiography (FA) and optical coherence tomography (OCT) revealed CRAO. She was submitted to 3 sessions of HBOT (100% O₂ at 2.4 atmosphere absolute-ATA), discontinued after a barotrauma of the middle ear. Visual defects on the nasal field were kept afterwards but visual acuity (VA) improved from counting fingers to 1.0 in the remaining fields. Case 2: A 65-year-old male presented with CRAO in his left eye (OS), with 3 hours of evolution. He underwent IVT with tPA (0.9mg/kg). Orbital sonography, FA and OCT confirmed the presence of an embolus and retinal ischemia. VA improved from light perception to 0.1. Case 3: A 21-year-old male showed acute visual loss in his OD with 3 hours of evolution. OCT and retinography identified CRAO. The patient was submitted to IVT (tPA-0.9mg/kg) followed by 12 sessions of HBOT (2.4 ATA). After 6 days, VA improved from hand motion to 0.4.

Conclusion: Our case series illustrates the different options and possible outcomes in acute management of a rare, but highly morbid, cerebrovascular disorder. Future clinical trials are warranted to tackle current difficulties in CRAO treatment.