## 6 - Neurobiology

### PO-081 - (23964) - INVESTIGATION OF OXYGEN DEFICIENCY IN THE RETINA WITH AN OPTIMAL ISCHEMIC RETINOPATHY MOUSE MODEL

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The retina is one of the highest metabolically active tissues, so insufficient blood supply leads to visual impairment. The incidence of related conditions is increasing; however, no effective treatment without side effects is available. Furthermore, the pathomechanism of these diseases is not fully understood. The aim of our study was to develop an optimal ischemic retinopathy mouse model and to investigate the consequences of hypoxia in a time-dependent manner.

Retinal ischemia was induced by bilateral common carotid artery occlusion (BCCAO) for 10,13,15 or 20 minutes, or by permanent unilateral common carotid artery occlusion (UCCAO) in mice. Morphological analysis of the retinal layers was performed in vivo by optical coherence tomography preoperatively and 3,7,14,21,28 days later. Molecular biology methods were used to investigate the consequences of hypoxia at the cellular level.

During the experimental period, the total retinal thickness decreased, and significant changes were observed in the nerve fiber layer and in the photoreceptor layer, among others, but the severity of damage did not differ between the regions. In contrast, a more significant decrease in ganglion cell number was observed in the periphery.

Our results suggest that the 20 minutes BCCAO is a good model to investigate the consequences of ischemia in a time-dependent manner, while the UCCAO causes more severe damage, so it can be used for testing new drugs. The damage probably starts in the periphery and is more severe there, but this difference has not yet been detected by imaging, which is also used in clinical practice.

**Palavras-chave : retina, ischemia, model**