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Cine-angiography ICG demonstrates choroidal re-perfusions after vortex vein occlusions in AMD

Luscan R

SFO Member, France

Choroidal modifications induced along aging and in AMD have been demonstrated. Choroidal volume is reduced along aging. Foveal choroidal blood flow is decreased by 37% in AMD and in systemic hypertension that is correlated with AMD. Choroidal thickness measured with SD OCT EDI is reduced by 50% in wet AMD. It has long been hypothesized that Vortex Vein Occlusion (VVO) might restore choriocapillaris perfusion. Clinical application in 17 human eyes with AMD was first attempted by Bonnet M. We presented a pilot study in 66 eyes in 2005 (French Society of Ophthalmology Annual Meeting). Another series including six eyes with a follow-up ranging from 6 to 33 months was presented at the combined ASRS-EVRS 2006 annual meeting (best poster award), and a further follow-up in EVRS 2008 and 2010 annual meetings. The present study evaluates the choroidal perfusion after VVO in four human eyes *in vivo*. Video cine indocyanine green angiograms were performed with a SD OCT (Heidelberg, HRA2) in four eyes of four patients, before and after VVO. Two eyes had geographic atrophy, one eye presented confluent retro-foveal drusen and one eye had pseudo vitelliform dystrophy. Open angle glaucoma with elevated intra ocular pressure was associated in two eyes. Decision making regarding which vortex vein(s) to be occluded was performed on a case by case basis according to the preoperative ICG angiogram. Two vortex veins were occluded in all eyes. The video recording was presented at the 2014 French Society of Ophthalmology. Visible spontaneous venous pulsations became visible in all eyes, indicating increase of the intravascular hydrostatic pressure. Dense vascular fillings were observed in areas with marked reduced perfusion prior surgery. A partial filling in the watershed zone was observed in two eyes. A new venous drainage was demonstrated in all eyes in the territory of a vortex vein that had not been occluded. Choroidal blood flow is a field that is currently under investigation. ICG cine video angiography is time consuming and requires specific training. AMD is multifactorial. Controlled studies are needed. VVO might be able to induce partial reversibility of the rheological disturbances in AMD. In the upcoming area of personalized medicine, VVO might have a place as a treatment to delay the natural course of the disease in those cases where choroidal ischemia is a triggering, and/or a prevailing factor.

Biography

Born in March 23 of 1949, medical studies 1967/77, including residency in Cardiology and Artificial Kidney Unit. SFO Member since 1980, SFO Oral Presentation 2005, E Poster and Film 2014/ E poster 2015/16. EVRS Member since 2006, Best scientific Poster 2006 ASRS/EVRS Meeting Cannes Retina Festival, EVRS Oral presentation Prague2008/Sevilla2012/ and Film Porto2014. All presentations up on the Vortex Vein Occlusion VVO concept.

r.luscan@wanadoo.fr

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