3 de Dezembro **08h30 | 10h00 – Sala 3**

Glaucoma, Geral | Glaucoma, General

Moderadores | Chairs: Paula Tenedório (HPH), Mariana Cardoso (HVFX), Isabel Sampaio (CHUPorto)

CO 121

OPTIC DISC MICROVASCULATURE EVALUATION IN GLAUCOMA PATIENTS USING SWEPT-SOURCE OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

Filipe Gouveia-Moraes[1], Nadine Marques[1], Pedro Carreira[1], Gonçalo Tardão[1], Ana Rita Carreira[1], Paula Telles[1], Nuno Campos[1]

([1]Hospital Garcia de Orta)

Introduction: Glaucoma is a multifactorial disease with a recognized pathogenic role of microvasculature and ocular blood flow abnormalities. Various studies analyzed the clinical relevance of optic disc (MvD-D) and parapapillary deep-layer microvasculature (MvD-P) dropout. Optical coherence tomography angiography (OCTA) allows non-invasive in-vivo imaging of the microvasculature, however the evaluation within the deep optic nerve head (ONH) has been challenging due to its limited depth of penetration and projection artifacts from superficial vessels. Swept-source OCTA (SS-OCTA) with projection artifact removal (PAR) can overcome these issues.
The purpose of this study is to investigate the utility of SS-OCTA with PAR in deep ONH microvasculature evaluation.

Methods: Observational study including patients with diagnosed primary open angle glaucoma. A 6.0- × 6.0-mm optic disc cube was obtained using SS-OCTA with PAR (PLEX Elite 9000; Carl Zeiss Meditec) and MvD-D and MvP-D were accessed. Detection of MvD-D and MvD-P was performed by 2 independent observers.
Three groups were defined according to MvD-D presence: no MvD-D (group 1), MvD-D (group 2, complete loss of microvasculature [>200 um] within the optic disc) and pseudo-MvD-D (group 3, poor lamina cribrosa visualization).Best corrected visual acuity, intraocular pressure, retinal nerve fibre layer (OCT Zeiss Cirrus 6000) and visual field (Octopus Haag-Streit) were accessed along with past medical and surgical history.

Results and Discussion: The study enrolled 105 eyes of 105 patients (mean age 68, 54 % female). There were 36 (34%) and 53 (51%) eyes categorized as group 1 and group 2, respectively. In 16 eyes (15%), lamina cribrosa was not visualized (group 3). There was good interobserver agreement for determination of MvD-D and MvD-P (MvD-D: kappa=0.86; MvD-P: kappa=0.89). MvD-D eyes had thinner average retinal nerve fibre layer (RNFL), worse visual field mean deviation (MD) and higher prevalence of MvD-P compared to the other 2 groups ($p<0.05$). MvD-D and MvD-P were present in the same sector in 85 % of the eyes in group 2, showing topographic correspondence between both.
The present study demonstrated that SS-OCTA is a good technique to visualize MvD-D, allowing the determination of MvD-D in 85% (89/105) of patients. Previous studies using SD-OCTA failed to identify MvD-D in 30 % of patients. This report shows that MvD-D patients appear to have more advanced glaucoma (thinner RNFL and higher visual field MD), which is in line with other studies, supporting some role of vascular damage in the pathogenesis of glaucomatous optic neuropathy.

Conclusion: SS-OCTA with PAR can be a useful tool in detecting optic disc microvasculature damage. Further studies should focus on glaucoma progression assessment using this method, with particular interest for advanced glaucoma patients when standard OCT reaches the “floor effect”