

## Abstract 92

### THE INFLUENCE OF TOPICAL MYDRIATICS ON PERIPAPILLARY AND MACULAR MICROVASCULATURE MEASURED BY OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY IN HEALTHY SUBJECTS AND DIABETIC PATIENTS WITHOUT DIABETIC RETINOPATHY

Oral

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#### **Purpose:**

Mydriasis does not influence the microvasculature of healthy patients, measured by optical coherence tomography angiography (OCT-A). No studies exist on patients with vascular diseases and many require mydriasis for good-quality scans.

We evaluated the influence of topical tropicamide and phenylephrine on OCT-A measured microvasculature of diabetic patients without diabetic retinopathy.

#### **Methods:**

A total of 20 healthy volunteers (healthy group) and 20 diabetic patients without diabetic retinopathy (diabetic group) were enrolled.

All patients had an axial length between 20 and 26 mm, intra-ocular pressures below 21 mmHg (iCare Tonometry®) and best corrected visual acuity of at least 20/25.

Patients underwent OCT-A (peripapillary and macular 6x6mm OCT-A scans, Cirrus HD-OCT 5000, Carl Zeiss Meditec®) at baseline, 20 minutes after tropicamide (10mg/mL) instillation on the left eye, and a third time 20 minutes after phenylephrine (100 mg/ml) instillation also on the left eye. The right eye was used as control.

#### **Results:**

In the healthy group, peripapillary and macular superficial vessel densities (VD), as well as Foveolar Avascular Zone (FAZ) area and perimeter, were not different after the instillation of tropicamide ( $p > 0,05$  for all the parameters) and phenylephrine ( $p > 0,05$  for all the parameters).

Regarding the diabetic group, macular VD increased significantly after the installation of tropicamide ( $16.4 \pm 2.2$  vs  $17.3 \pm 1.4$  mm<sup>-1</sup>;  $p = 0,042$ ). The further instillation of phenylephrine did not induce further changes in macular VD, nor in FAZ parameters. Peripapillary vascularity was not affected by mydriasis.

No significant differences were found in the fellow eyes of any of the groups.

#### **Conclusions:**

Mydriasis can introduce a bias in OCT-A measurements. Tropicamide significantly increases superficial macular VD in diabetic patients without diabetic retinopathy, while it has no significant influence on healthy controls. Subsequent phenylephrine has no significant impact on VD. Further studies should be done to assess the impact of isolated phenylephrine.