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RETINOPATHY IN TYPE 1 DIABETES AND OCTA OVERLAY WITH BLOOD GLUCOSE VARIABILITY (RED OCTOBER): A CROSS-SECTIONAL OBSERVATIONAL STUDY IN SUB-OPTIMALLY CONTROLLED PATIENTS

Poster

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Purpose:

The contribution of glycemic variability (GV) on diabetes mellitus complications is not yet fully understood. Our primary endpoint is to evaluate the role of GV in suboptimally-controlled patients with type 1 diabetes mellitus (DM1) on macular morphology and vascularization, analyzing optical coherence tomography (OCT) and OCT-angiography (OCTA) parameters.

Methods:

54 adult DM1 patients with interstitial blood glucose monitoring systems and no or mild diabetic retinopathy (DR) underwent a complete ophthalmic examination, OCT and OCT-A. We considered GV indexes, referred to the previous 3 months, duration of disease, glycated hemoglobin and time in hypoglycemia. OCT parameters were central retinal thickness, Ganglion Cell Layer (GCL) and Retinal Nerve Fiber Layer (RNFL) thickness, choroidal thickness; with OCT-A we studied FAZ parameters (area, perimeter and circularity index), vessel and perfusion density (VD and PD) in superficial, deep and choroidal capillary plexi and the number of microaneurysms visible in superficial and deep plexi.

Results:

We didn't find any statistically significant correlation between GV indexes and OCT and OCT-A parameters. Neither HbA1c, hypoglycemia and age correlated with structural or vascular findings. We found a statistically significant negative correlation between duration of the disease and VD of the choriocapillary plexus (CCP) (divided into central "C", inner "I", outer "O" and whole "W" areas). In particular, we found an association by Spearman correlation in VD of CCO (- 0,33, p= 0,015) and in VD of CCW (-0,27, p= 0,048); a strong trend was observed in VD of CCI (-0,24, p= 0,07).

Conclusions:

In a suboptimally-controlled cohort of patients with DM1 and absence of macular edema changes in choriocapillaris plexus can be early observed, and they are more evident the longer is the disease. GV does not seem to influence chorioretinal features, but further studies are needed to find more significant results.