ONE-YEAR PROGRESSION CHARACTERIZATION OF DIABETIC RETINOPATHY RISK PHENOTYPES

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Purpose: To characterize one-year progression of diabetic retinopathy phenotypes B and C associated with risk of developing sight-threatening complications in type 2 diabetes (T2D).

Methods: T2D individuals were followed in a one-year longitudinal study. Systemic factors evaluated: age, sex, diabetes duration, lipidic profile, inflammatory cytokines and hemoglobin A1c (HbA1c). Ophthalmological examinations were performed at baseline, 6 months and one-year, including visual acuity (BCVA), color fundus photography (CFP) and optical coherence tomography (OCT and OCTA). Phenotype classification was performed based on microaneurysm turnover (MAT, on CFP) and central retinal thickness (CRT, on OCT). Phenotype B identified by low MAT (<6) and increased CRT; and Phenotype C identified by higher MAT (≥6) with or without increased CRT. ETDRS grading of 7-fields CFP was performed at the initial visit.

Results: 142 individuals with T2D were recruited (81 phenotype B and 60 phenotype C). Of these, 136 completed the one-year follow-up or developed DME (19 eyes, (14%) considering both clinically significant macular edema (CSME) and center-involved macula edema (CIME). Eleven eyes with phenotype B (14%) and 7 eyes with phenotype C (12%) developed CIME. One eye with phenotype C developed CSME. During the follow-up period, phenotype C showed BCVA decrease (p=0.008), increased ganglion cell layer (GCL) thinning (p=0.022) and decreased vessel density (p=0.004). No significant changes were detected in CRT in both phenotypes during follow-up.

Conclusions: In one-year follow-up, both phenotypes B and C showed development of CME, however, only phenotype C was associated with disease progression, neurodegenerative changes and vessel closure.