CHARACTERIZATION OF RISK PHENOTYPES IN TYPE 2 DIABETES INDIVIDUALS WITH NONPROLIFERATIVE RETINOPATHY

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Purpose: Diabetic retinopathy phenotypes, particularly B and C, have been shown to be associated with the development of vision-threatening complications. Here, we have further characterized these retinopathy phenotypes, regarding systemic and ocular features.

Methods: Patients with T2D and nonproliferative retinopathy (NPDR) were examined using 7-fields 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 was identified by low MAT (<6) and increased CRT and Phenotype C by higher MAT (≥6) with or without increased CRT. ETDRS grading was performed in 7-fields CFP. Age, sex, diabetes duration, lipidic profile, inflammatory cytokines and hemoglobin A1c (HbA1c) were also evaluated.

Results: 141 eyes/patients with NPDR (81 phenotype B and 60 phenotype C) were evaluated. Phenotype C patients had higher HbA1c levels (p=0.048) and phenotype B individuals presented higher values of HDL cholesterol (p=0.036) and interleukin-8 (p=0.027). Phenotype C was characterized by lower vessel density (p≤0.012) and ganglion cell layer thinning (GCL; p=0.006). Phenotype C was also identified in eyes with more severe ETDRS level (50% ETDRS 43-47) than phenotype B (17% ETDRS 43-37).

Conclusions: Of the two NPDR phenotypes, phenotype C is characterized by vessel closure, namely higher MAT and decreased vessel density, accompanied by GCL thinning, whereas phenotype B is characterized by increased CRT and higher values of systemic inflammatory markers.