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Presentation Abstract

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Abstract Title: **Diabetic Macular Edema Phenotypes: The Imaging Perspective**

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Author Block: *E. Midena*^{1,2}, *M. Casciano*¹, *E. Bottega*¹, *E. Benetti*¹, *S. Vujosevic*².¹Department of Ophthalmology, University of Padova, Padova, Italy;²Fondazione GB Bietti, IRCCS, Roma, Italy.

Keywords: 500 diabetic retinopathy, 506 edema, 550 imaging methods (CT, FA, ICG, MRI, OCT, RTA, SLO, ultrasound)

Abstract Body: **Purpose:** Diabetic macular edema (DME) shows variable clinical characteristics with unpredictable results to local treatment, probably reflecting different phenotypes. The aim of this study was to evaluate the role of structural and functional macular imaging in the characterization of DME patterns.

Methods: One hundred twenty one eyes of 75 diabetic patients with untreated DME underwent: best corrected visual acuity determination (BCVA, logMAR), slit lamp biomicroscopy, fluorescein angiography, OCT (mean central field (CF) retinal thickness, DME pattern, and spectral domain volume), fundus autofluorescence (FAF): absent or increased FAF (IFAF: single and multiple *spots*; IFAF area quantification), retro-mode scanning laser ophthalmoscopy and microperimetry. Sensitivity values are expressed as the median of mean retinal sensitivity of each study group.

Results: Thirty five eyes had normal FAF, 86 IFAF (28 single *spot* IFAF, 58 multiple *spots* IFAF). Retinal sensitivity over areas with IFAF was 10.5 dB (vs 15.2 db in normal areas, $p < 0.005$). Retinal sensitivity of the CF vs FAF was: 14.6 dB normal FAF, 12.10 dB single spot and 10.9 dB multiple spots IFAF ($p < 0.05$). A significant correlation was found between area of IFAF, positive retro-mode imaging and CF retinal sensitivity ($r = -0.4, p = 0.01$). Cystoid OCT-pattern and macular volume were correlated to both presence and dimension of IFAF and retro-mode imaging ($p < 0.05$), whereas sponge-like and subfoveal neuroretinal detachment were not correlated. OCT-CF thickness did not correlate to FAF pattern and retro-mode imaging ($p = 0.1$). BCVA did not correlate either to FAF pattern or area of IFAF.

Conclusions: The use of an integrated structural and functional retinal imaging approach allows to identify some (new) different DME phenotypes, which may be related to treatment prognosis when prospectively evaluated.

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