The area and number of intraretinal cystoid spaces predict the visual outcome after intravitreal ranibizumab monotherapy in diabetic macular edema

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**Purpose:** To determine predictive factors for visual outcome in diabetic macular edema (DME) after anti-vascular endothelial growth factor therapy, which varies across individuals.

**Methods:** We retrospectively reviewed the clinical records of 46 treatment-naive eyes of 46 patients with DME who underwent intravitreal ranibizumab (IVR) monotherapy with a pro re nata regimen for 12 months. Best-corrected visual acuity (BCVA) and eye examination data including optical coherence tomography (OCT) images were analyzed.

**Results:** Overall, the mean BCVA improved. Multivariate analyses adjusted for age and baseline BCVA showed that the area ratio, compared with the retinal area, and the number of intraretinal cystoid spaces evaluated on OCT images at baseline positively correlated with LogMAR BCVA at 12 months. The area ratio and number at baseline also positively correlated with the extent of ellipsoid zone and external limiting membrane disruptions at 12 months, and negatively correlated with central retinal thickness at the time of edema resolution. The extents of the disruptions and the thickness corresponded to BCVA at 12 months. A high area ratio and large number of intraretinal cystoid spaces resulted in a disorganized outer retinal structure at 12 months, a thin and atrophic retina after edema resolution, and a worse visual outcome.

**Conclusions:** The area ratio and number of intraretinal cystoid spaces on initial OCT images were predictors of visual outcome after IVR therapy in DME irrespective of baseline age and BCVA. The factors were related to retinal degeneration in DME and can help obtain proper informed consent before treatment.