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A durable therapy for diabetic macular edema: All we need is to choose the right imaging approach

Statement of the Problem: Intravitreal anti-VEGF medications and steroids, and often laser photocoagulation are routinely used in the major studies for treating diabetic macular edema (DME), including focal type, diffuse (DDME), epiretinal membrane (ERM)-associated and even ischemic-related. However, lucentis treatment, for example, failed in more than 50% of eyes. On the other hand, there are DDME eyes that respond well to grid laser prior to administration of any medication. And, there are many so called non-tractional DDME eyes with neither vitreofoveal traction nor ERM that respond well to pars plana vitrectomy (PPV) after repeat failures of the alternative treatments. If we had known the distinctiveness of these DDME eyes, we could probably treat them rightly by either early PPV or grid laser, avoiding intravitreal medications.

Methodology: Using full-field 3D SD-OCT (Topcon-1000) that scans point by point continuously, rather than by separate lines and thus provides 3D data and 360o video clips and following search at extramacular sites, I present our published pathogeneses of DDME.

Results: Out of 58 consecutive DDME eyes, pathogenesis was mostly tractional: Vitreofoveal traction 19.0% (n=11); central ERM 22.4% (n=13); sole extrafoveal traction, either vitreoretinal or vitreopapillary 34.5% (n=20) of eyes. The remaining 24.1% (n=14) of eyes presented with neither extrafoveal/vitreofoveal traction nor ERM, i.e., true non-tractional or primary DDME. Thus, the previous term non-tractional DDME was found to actually consist of overlooked extrafoveal traction and primary true non-traction.

Conclusions & Significance: By using full-field 3D-OCT imaging, we present the pathogeneses of diffuse DME. A proper durable treatment would be aimed towards the pathogenesis: PPV or observation in tractional DDME and laser photocoagulation in non-tractional DME, both in focal and diffuse types. The outcome of the hundreds of DME treatment studies is now clearer.

Biography

Avinoam Ophir has completed his Medical studies and Residency in Hadassah Medical Center in Israel. During his Retina Fellowship in Bascom Palmer Eye Institute, he together with Mark Blumenkranz introduced the antimetabolites, primarily 5-FU to the ophthalmology world, in order to treat non-malignant proliferating cells, especially in the prevention of postoperative scarring. He was appointed as the Chairman in the Department of Ophthalmology in Hadera in 1993, associated with the Technion School of Medicine. For the last 4 years he works at the Retina Unit in Wolfson MC.

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