



## Diabetic Retinopathy: Where are we today?

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Diabetic retinopathy remains the leading cause of blindness in the working-class age group. New treatment strategies have improved the outcomes. Here is a review on what's available for your patients today.

### Anti-VEGF agents:

Bevacizumab (Avastin) has been used off label for the treatment of diabetic macular edema for over a decade. Lucentis (ranibizumab) was approved thereafter and most recently aflibercept (Eylea). In a head-to-head study, Eylea was found to be more effective and was sent to us for the management of diabetic macular edema. It's a synthetic antibody that binds 3 different moieties: Anti-VEGF A, Anti-VEGF B, and placenta derived growth factor. In many cases avastin is still used as first-line treatment but these new alternatives give hope to those resistant cases. Tachyphylaxis can still occur even with Eylea and alternating anti-VEGF agents is sometimes necessary. Anti-VEGF drugs also inhibit proliferative diabetic retinopathy and can facilitate clearance of vitreous hemorrhage.

### Steroid injections:

Some patients have macular edema that is resistant to anti-VEGF therapy in part or all together. Steroids block the eicosanoid pathway which plays a significant role for diabetic related edema in a variety of patients. The dexamethasone implant, Ozurdex, has now been approved for use for diabetic macular edema. Originally approved for uveitis and branch retinal vein occlusion, this long acting sustained release implant can be administered up to every X months. Alternative steroid injections include intravitreal triamcinolone acetate and posterior subtenon kenalog. The newest option is the long acting fluocinolone implant, urethra. Combination therapy is sometimes utilized for the best possible outcome.

### Laser treatments:

Conventional focal and grid laser as

well as pan retinal photocoagulation are still used in patients that meet the criteria. When there is associated CME, pretreatment with a series of anti-VEGF or steroid injections will achieve the best results. Newer laser options include delivering subthreshold laser energy to the RPE using standard argon or diode-green laser or a micropulse laser. Closing of leaking microaneurysms is no longer an endpoint for laser –gentle laser causes less destruction and comparable or even better results.

### Chemical and Mechanical Vitrectomy:

Chronic DME may be associated with epiretinal membrane and/or vitreomacular adhesions. In the latter case we now checked reactive release of macular traction and effectively treated some cases of edema. Since intravitreal injection, however, can facilitate vitreous separation and since anti-VEGF drugs or steroids can also facilitate resorption of edema, the use of Ocriplasmin (Jetrea) in this setting remains unclear. Peeling of the epiretinal membranes with vitrectomy is still a mainstay for those recalcitrant cases. 27-gauge vitrectomy is now available even for complex diabetic retinal detachments and surgical intervention can be achieved more safely and effectively than ever before.

### Topical therapy:

A variety of topical drugs are now available for treating inflammation and edema. While off label, nonsteroidal anti-inflammatory drugs, mild and strong steroids and carbonic anhydrase inhibitors have been shown in limited studies here at RMI to reduce macular edema. We may use these as first-line therapy for very mild cases, particularly in pseudophakic patients. While diabetic retinopathy continues to cause blindness, early detection can affect complete prevention. Follow the appropriate guidelines set up by your academy and promptly refer patients with the earliest signs of disease.