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How Anti-VEGF Compares with Steroids in Retinal Vein Occlusion

Ryan Quigley:

You're listening to *AudioAbstracts* on ReachMD. I'm Ryan Quigley and today, we'll be reviewing a recent meta-analysis comparing anti-VEGF monotherapy, steroid monotherapy, and combination therapy for macular edema secondary to retinal vein occlusion. This study was published in *Frontiers in Medicine* in January 2026.

For context, macular edema is a leading cause of vision loss in patients with retinal vein occlusion, or RVO. While anti-VEGF agents are widely accepted as first-line therapy, both steroid monotherapy and combination approaches continue to be used in practice and have been directly evaluated in clinical trials. As a result, this systematic review and meta-analysis aimed to compare the efficacy and safety of these three treatment strategies, drawing from 22 randomized controlled trials involving over 2,200 patients.

With that in mind, let's dig into the findings. Thirteen of the analyzed trials specifically assessed changes in central macular thickness, and the review found that anti-VEGF monotherapy resulted in a significantly greater reduction compared to steroid monotherapy or combination therapy. The pooled mean difference was 43 microns, with a 95 percent confidence interval from approximately 77 to 10 microns, and a p-value of 0.01.

Visual acuity outcomes depended on the measurement method. When using the Early Treatment Diabetic Retinopathy Study, or ETDRS letters, anti-VEGF monotherapy showed a statistically significant benefit, with an average gain of 5.72 letters. The 95 percent confidence interval ranged from 1.82 to 9.61, with a p-value of 0.004. However, when visual acuity was assessed using the logMAR scale—the logarithm of the minimum angle of resolution—no statistically significant difference was found among the three treatment groups.

In terms of safety, anti-VEGF monotherapy was associated with a lower incidence of several adverse events compared to steroid-based regimens. Specifically, it was linked to fewer cases of cataract, ocular hypertension, elevated intraocular pressure, and vision loss when compared to steroid monotherapy. It also showed a lower incidence of ocular hypertension compared to combination therapy.

That said, there's a trade-off. Anti-VEGF treatment required more injections—on average, 2.5 more than the other groups—which may pose logistical or adherence challenges for some patients.

On the whole, this meta-analysis supports anti-VEGF monotherapy as the most effective option for reducing central macular thickness in patients with RVO, with a favorable safety profile. The strength of the study lies in its inclusion of 22 randomized controlled trials, a systematic review methodology, and high-certainty ratings for key outcomes. However, limitations, including limited data on combination therapy, variability in follow-up, and underreporting of adverse events, should be considered when applying these findings to individual patients.

This has been an *AudioAbstract*, and I'm Ryan Quigley. To access this and other episodes in our series, visit ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!

Reference:

Cai H, Tian M, Huang Z, Wang B. The efficacy and safety of intraocular anti-VEGF injections versus anti-VEGF combined with steroids or steroid monotherapy for macular edema secondary to retinal vein occlusion: a systematic review and meta-analysis of randomized controlled trials. *Front Med (Lausanne)*. 2026;12:1727801. Published 2026 Jan 12. doi:10.3389/fmed.2025.1727801