



Changes in venous calibre during intra-vitreous therapy for central retinal vein occlusion

Yasmin Bakr¹ · Mike Stockton² · Martin McKibbin^{1,2}

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To the Editor:

We read the article by Zeng et al. who evaluated the use of intravitreal conbercept for treatment of macular oedema, with great interest [1]. Despite reports of significant improvement in vision resulting from the use of monotherapy anti-VEGF agents in patients with macular oedema, it is deemed relatively short term, with evidence of rebound macular oedema following discontinuation of treatment, it is therefore important to consider utilising combination therapy.

In a pilot study of 12 eyes in the LEAVO study, we recorded venous and arterial calibre change to month 24 and investigated associations with the number of injections. This study included fundus images from 12 patients. Using colour fundus photographs of the 12 eyes from the baseline, months 12 and 24, retinal vascular calibre was recorded.

Mean baseline CRVE and CRAE in the study eyes were 159.4 μm (range 128–198 μm) and 76.8 μm (range 54–93 μm) respectively, with mean CRVE in the unaffected fellow eyes being 120 μm (range 115–145 μm). Mean CRVE decreased significantly in all affected eyes ($p < 0.05$) over the 24-month period, with a 33% average CRVE reduction. Much of the reduction was observed within the first 12 months, with 29% and 6% in the first and second 12-month periods, respectively. Mean CRAE in treated eyes reduced by 10.6% to month 24 [2, 3].

Utilising the LEAVO protocol, treated eyes received a mean of 13 injections from baseline to month 24. The number of injections showed a weak positive association with baseline CRVE and a weak negative association with percentage change in CRVE. A mean of 13 injections were

given to the five eyes with CRVE reductions of $\geq 40\%$, compared with 15 injections in three eyes with CRVE reductions of $\leq 25\%$ and 18 injections in the single eye with a CRVE decrease $\leq 6.5\%$ to month 24. This suggests that analysis of baseline and change in retinal venous calibre may help identify eyes that require ongoing therapy. Given the small sample size, the associations with CRVE did not reach statistical significance but warrant further analysis, for both CRVO and macular oedema [4].

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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References

1. Zeng HY, Liu Q, Li XX, Sun YX, Zhang ZJ. One-year efficacy of intravitreal conbercept injection for macular oedema secondary to central retinal vein occlusion in Chinese patients. *Eye*. 2020;24:1–6.
2. Corvi F, Querques G, La Spina C, Lattanzio R, Bandello F. Dynamic and static retinal vessel analyses in patients with macular edema secondary to retinal vein occlusion. *Retina*. 2015; 35:2052–9.
3. Yilmaz Tugan B, Karabas L, Ozkan B. Impact of intravitreal dexamethasone implant on vessel diameters in patients with retinal vein occlusion. *J Ophthalmol*. 2019;2:3982428.
4. Moradi A, Sepah YJ, Ibrahim MA, et al. READ-2 Investigators. Association of retinal vessel calibre and visual outcome in eyes with diabetic macular oedema treated with ranibizumab. *Eye (Lond)*. 2014;28:1315–20.

✉ Yasmin Bakr
yasmin.bakr1@nhs.net

¹ University of Leeds, Leeds, UK

² Eye Clinic, St. James's University Hospital, Leeds, UK