MacularNEWS

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Retinal Vein Occlusion: Real-World Insights from the Fight Retinal Blindness (FRB) Registry

For patients receiving eye injections for retinal vein occlusion (RVO), the treatment journey involves a sustained commitment — regular appointments, regular eye scans, regular injections and ongoing monitoring. The Fight Retinal Blindness (FRB) registry has spent over 10 years studying how well these treatments work in routine clinical practice.

Background (Figure 1)
The retina depends on an intact network of blood vessels to function normally. Occlusion of one of the retinal veins results in haemorrhage and swelling of the retina, which reduces vision if it gets into the centre of the retina, the "macula". Depending on the vessel involved, these occlusions are classified as branch, hemiretinal, central (total) retinal vein occlusions. Injections of drugs that inhibit a key factor that causes bleeding and swelling in the retina, Vascular Endothelial Growth Factor (VEGF), is the "first line" treatment .

What the FRB Registry Tells Us
The FRB registry captures outcomes from thousands of patients treated in routine clinical settings across Australia and internationally, providing a level of generalisability and long-term follow up that clinical trials cannot offer.

Director's Message

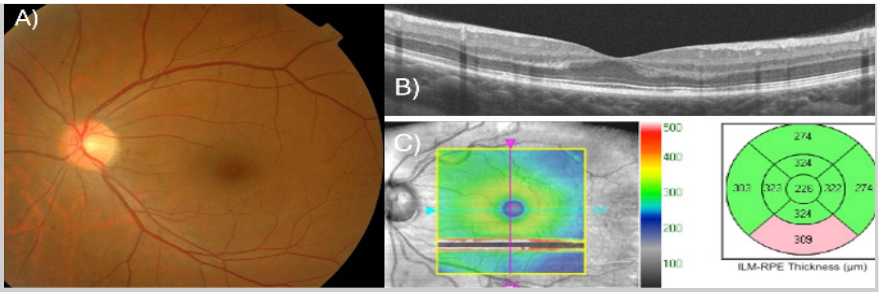
In this edition of MacularNEWS, we explore recent findings from the Fight Retinal Blindness! (FRB!) Project, providing insights into how effective eye injections are for retinal vein occlusion (RVO) and what patients can expect from treatment.

Thank you for your continued interest in our work. I hope you enjoy reading this edition.

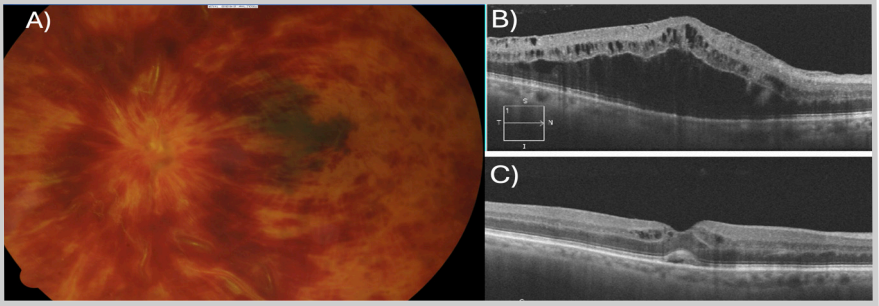
Professor Mark Gillies
Macula Research Group

Figure 1. Spectrum of retinal vein occlusion and treatment response

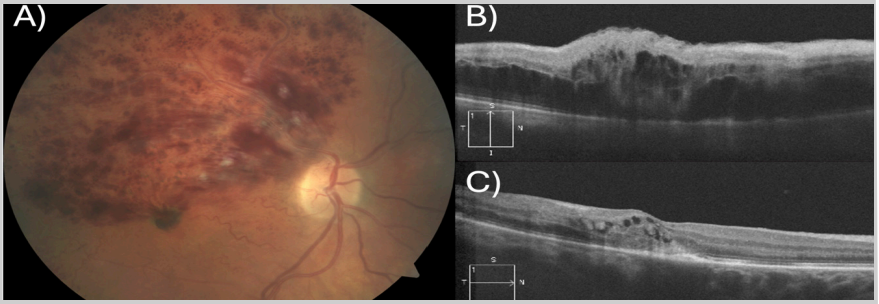
Normal retina: A) colourfundus photograph, B) OCT scan of the macula, and C) retinal thickness map.



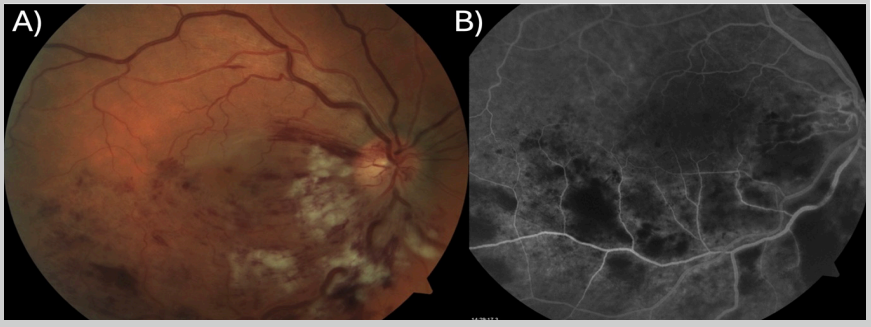
Central RVO: A) dilated tortuous veins and intraretinal haemorrhages, B) macular oedema on OCT, and C) response to intravitreal VEGF inhibitor.



Branch RVO: A) sectoral haemorrhage and cotton wool spots, B) macular oedema on OCT, and C) response to intravitreal VEGF inhibitor.



Hemiretinal RVO: A) retinal haemorrhage and venous dilation, and B) capillary non-perfusion on fluorescein angiography.



A consistent finding is that how often the injections are given has a significant bearing on how well patients end up seeing. Clinical trials conducted under laboratory like conditions typically report vision gains of 12 to 17 letters on an eye chart (approximately 3 lines) in patients with RVO. Fewer injections are often given in routine care, where treatment intervals are influenced by practical factors including transport, other diseases patients may have and cost, and outcomes may reflect this — particularly in central RVO, where more frequent and sustained treatment has the greatest impact.

Our data indicate that patients with RVO in routine care receive approximately eight injections in the first year, declining to around five in the second year and four in the third. Notably, approximately half of all patients continue to require ongoing treatment at three years, underscoring the chronic nature of the condition.

These RVO patients may require lifelong treatment to maintain their vision in their affected eye (fortunately RVO only affect the other eye in around 1 in 7 patients).

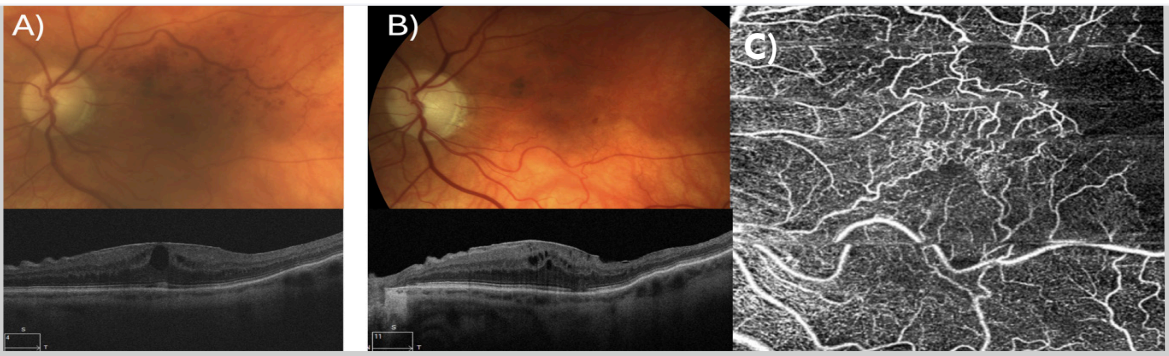


Figure 2. 3-year outcomes in branch RVO following intravitreal VEGF inhibitor

A) retinal haemorrhage and macular oedema, B) reduction following intravitreal VEGF inhibitor, and C) vascular remodelling on OCT angiography.

Outcomes at Three Years

For central RVO, our three-year data indicate that approximately one in three patients achieve and maintain good visual acuity (6/12 or better, which is driving vision), while a similar proportion experience significant visual loss (6/60 or worse, which is "legally blind"). Outcomes in branch RVO are more favourable — two-thirds of patients achieve good vision at three years, with few progressing to severe visual impairment.

Comparing different drugs within the registry demonstrated that aflibercept (Eylea) results in greater reductions in macular swelling in both branch and central RVO, and better visual gains in central RVO, than ranibizumab (Lucentis). We have found that the cheap VEGF inhibitor, bevacizumab (Avastin), can also be effective for RVO.

Of relevance to patients who are developing cataract, we have found that cataract surgery can be performed safely in people receiving eye injections for RVO, although they may need to be given an extra injection in the year following surgery.

The Role of Treatment Intensity

An analysis of doctors who treat RVO with more or fewer injections — ranging from approximately six-weekly to twelve-weekly intervals on average — demonstrated meaningful differences in visual outcomes over two years, with more frequent injections generally associated with better results.

Emerging Treatments

Faricimab (Vabysmo) became available in Australia for RVO in March 2025, and a higher-dose formulation of aflibercept (Eylea High Dose) may follow. Clinical trial data suggests these agents may last longer so they do not need to be given as often. The FRB registry will be studying this closely to see whether it is true, because they are more expensive but they would be worth it if they reduced the number of injections required.

Conclusion

Real-world registry data provide an essential complement to clinical trial evidence, because they demonstrate whether a drug that looked good under the rigid conditions of a clinical trial is still beneficial when it is used in routine clinical practice where all sorts of other considerations apply. The consistent message from FRB data is that sustained engagement with treatment — regular attendance and open communication with the treating clinician — remains the most important modifiable factor in achieving the best long-term visual outcomes for patients with RVO.

Meet Dr Adrian Hunt

Figure 3. Dr Adrian Hunt (MBBS, FRANZCO, PhD)

Dr Adrian Hunt is a Clinical Senior Lecturer at the University of Sydney and a researcher at the Save Sight Institute under the supervision of Professor Mark Gillies. He is an ophthalmologist with appointments at Westmead Hospital, Eye Associates, and Eye Surgeons Miranda. He specialises in the medical care of retinal diseases, as well as cataract surgery and glaucoma care.

If you would like to make a tax-deductible donation or discuss leaving a bequest to support macular research please visit our website sydney.edu.au/save-sight-institute/support-us/donate.html or scan the QR code below.

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