Four-Year Outcomes of Retinal Vein Occlusion with Macular Oedema Treated with Anti-VEGF: Real World Data

M Butt, A Butt, R Cheema, E Dorairaj, P Prakash

NHS
The Princess Alexandra Hospital
NHS Trust

Introduction

Major studies including BRAVO, CRUISE, VIBRANT,LEAVO and GALILEO have demonstrated the efficacy of intravitreal anti-VEGF at improving visual acuity in retinal vein occlusion (RVO) for a period of 12-24 months. There is limited data for long term outcomes for RVO treated with anti-VEGF.

Aim

To evaluate the efficacy of RVO service at our trust and compare with baseline studies and real world data

Methodology

A retrospective study of all RVO patients treated with anti-VEGF between 1st March 2014 to 1st March 2020 at Princess Alexandra Hospital, Harlow

All patients with a minimum of 4 year follow up were included in the data collection. Cases were categorised according to disease

Data regarding disease, management, visual acuity (VA) and number of injections per year was collected through the mediSIGHT electronic medical record system

Each eye was given a loading dose of 3 injections monthly followed by a further 2 injections based on response. Further injections were Treat and Extend if active or monitor and extend if stable

Results

A total of 82 eyes had follow up for 4 years during the study period:

- 55 (67%) Branch Retinal Vein Occlusion (BRVO)
- 27 (33%) Central Retinal Vein Occlusion (CRVO)

At 4 years nearly 75% of BRVO and 51% of CRVO achieved and maintained good visual outcome with a total of about 16 injections over 4 years

References

1. Brown DM, Campochiaro PA, Bhisitkul RB, Ho AC, Gray S, Saroj N, et al. Sustained benefits from ranibizumab for macular edema following branch retinal vein occlusion: 12-month outcomes of a phase III study. Ophthalmology [Internet]. 2011 Aug [cited 2021 May 1];118(8):1594–602. Available from: https://pubmed.ncbi.nlm.nih.gov/21684606/
2. Campochiaro PA, Brown DM, Awh CC, Lee SY, Gray S, Saroj N, et al. Sustained benefits from ranibizumab for macular edema following central retinal vein occlusion: Twelve-month outcomes of a phase III study. Ophthalmology [Internet]. 2011 Oct [cited 2021 May 1];118(10):2041–9. Available from: https://pubmed.ncbi.nlm.nih.gov/21715011/
3. Brown DM, Heier JS, Clark WL, Boyer DS, Vitti R, Berliner AJ, et al. Intravitreal aflibercept injection for macular edema secondary to central retinal vein occlusion: 1-year results from the phase 3 copernicus study. Am J Ophthalmol [Internet]. 2013 [cited 2021 Jan 5];155(3):429-437.e7. Available from: https://pubmed.ncbi.nlm.nih.gov/23218699/
4. Korobelnik JF, Holz FG, Roider J, Ogura Y, Simader C, Schmidt-Erfurth U, et al. Intravitreal aflibercept injection for macular edema resulting from central retinal vein occlusion: One-year results of the phase 3 GALILEO study. Ophthalmology [Internet]. 2014 Jan [cited 2021 May 1];121(1):202–8. Available from: https://pubmed.ncbi.nlm.nih.gov/24084497/
5. Spooner K, Fraser-Bell S, Hong T, Chang AA. Five-year outcomes of retinal vein occlusion treated with vascular endothelial growth factor inhibitors. BMJ Open Ophthalmol [Internet]. 2019 Mar 1 [cited 2021 May 8];4(1):249. Available from: http://bmjophth.bmj.com/

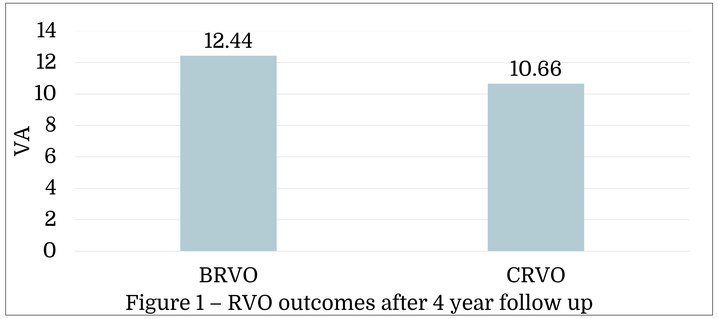


Figure 1 – RVO outcomes after 4 year follow up

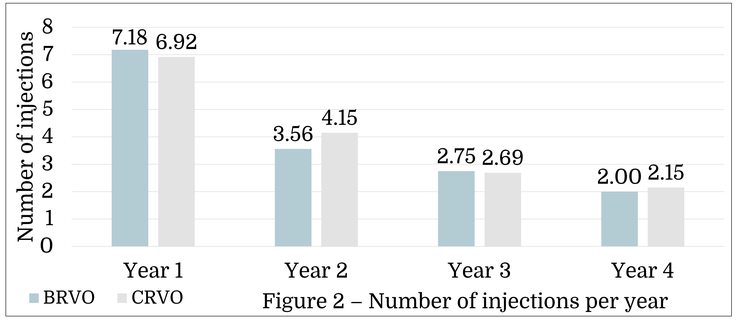


Figure 2 – Number of injections per year

	BRVO	CRVO
Mean VA change at 4 years	12.44	10.66
Mean number of injections in first year of follow up	7.18	6.92
VA >65 letters at 4 years	41 (74.55%)	14 (51.85%)
VA <35 letters at 4 years	2 (3.64%)	4 (14.81%)
VA +/- 5 letters at 4 years	7 (13.21%)	5 (20.00%)
VA > 15 letters lost at 4 years	2 (3.77%)	2 (8.00%)

Figure 3 – RVO mean VA change after 4 years follow up

Conclusion

Good long-term outcomes can be achieved with anti-VEGF treatment for RVO

Our outcomes for BRVO and CRVO are comparable to baseline studies and real world data (Fig 4)

Further studies and real world data is required to assess long term outcomes

	PAH BRVO 48 months	PAH CRVO 48 months	BRAVO [1] 12 months	CRUISE [2] 12 months	VIBRANT [3] 12 months	GALILEO [4] 12 months	Spooner et al [5] 60 months
Mean VA change	12.44	10.66	16.4 (0.3mg) 18.3 (0.5mg)	13.9 (0.3mg) 13.9 (0.5mg)	12.2	16.9	14.2 (BRVO) 9.6 (CRVO)
Mean number of injections in first year	7.18	6.92	8.5 (0.3mg) 8.4 (0.5mg)	9.6 (0.3mg) 8.8 (0.5mg)	-	11.8	6.9

Figure 4 – Comparison of RVO service outcomes with baseline studies and real world data