Effectiveness and Durability of Brolucizumab Treatment in Real-World Neovascular Age-Related Macular Degeneration (nAMD) Patients in the U.S.: Findings from the American Academy of Ophthalmology IRIS® Registry (Intelligent Research in Sight)

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Purpose

We evaluated real-world outcomes in patients with neovascular age-related macular degeneration (nAMD) after 12 months of brolucizumab therapy.

Methods

Patient data were extracted from the American Academy of Ophthalmology's IRIS® Registry (Intelligent Research in Sight), the US's first comprehensive eye disease clinical database. Patient eyes with an initial brolucizmab injection (baseline) with ≥2 brolucizumab injections in the following 12 months and no other anti-VEGF agent were included in the cohort. Primary outcomes were: 1) change in best recorded visual acuity (VA); and for treatment-experienced eyes, 2) comparison of the time between the last 2 brolucizumab injections during the study period (brolucizumab interval) and the time from the prior anti-VEGF injection to the baseline brolucizumab injection (pre-switch interval). Secondary outcomes included adverse events during the study period.

Results

- 2,079 patients (2,308 eyes) met the eligibility criteria. Overall baseline VA was 61.6±18.4 ETDRS letters equivalent. 2,088 eyes (90.5%) received prior anti-VEGF treatment. Of these, 2,015 eyes received a different anti-VEGF treatment within 1 year before switching to brolucizumab. These treatment-experienced eyes had a mean pre-switch injection interval of 7.6±5.5 weeks; 29.5% had a pre-switch interval of ≥8 weeks.
- At 12 months, 86.1% of treatment-naive eyes and 83.7% of treatment-experienced eyes showed stable (<10 letters gained/lost) or improved VA (≥10 letters gained). For treatment-naïve eyes, the mean brolucizumab interval was 11.6±4.8 weeks, and 42.7% had intervals of ≥12 weeks. Among treatment-experienced eyes, the mean brolucizumab interval was 10.3±4.0 weeks and 83.1% had an interval ≥8 weeks. 1,554 treatment-experienced eyes (77.1%) had an interval extension of ≥1 week; of these, 1,374 (88.4%) were extended by ≥2 weeks and 861 (55.4%) were extended by ≥4 weeks. Patients with pre-switch intervals <8 weeks had the greatest treatment interval extensions.
- Incident intraocular inflammation, endophthalmitis, and/or retinal vascular occlusion occurred in 1.2% of eyes (n=24). Of the 22 cases with VA recorded 45 days after the event, 6 experienced VA loss of ≥ 15 letters.

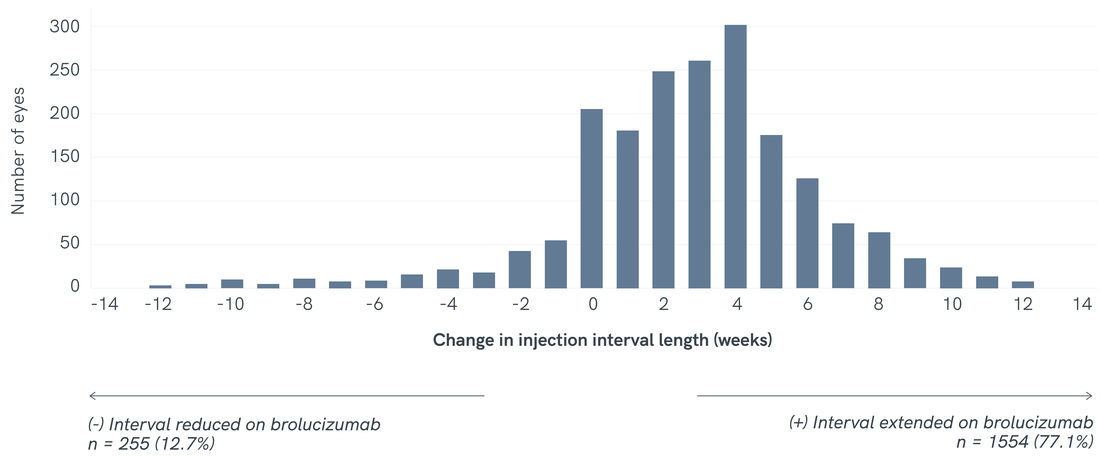
Table 1. Best Recorded Visual Acuity, Stratified by Prior Treatment Status

Characteristic	All Treatment-Experienced (n = 2088 eyes)	Treatment-Naive (n = 220 eyes)
BCVA in ETDRS equivalent letters, mean ± SD		
Index	**61.9 ± 18.1**	**59.3 ± 20.7**
12 months	**61.9 ± 18.9**	**62.9 ± 20.1**
Change from index to 12 months	**0.0 ± 12.1**	**3.6 ± 17.6**
Vision change from index to 12 months, n (%)		
Substantial gain (≥30 letters gained)	**41 (2.0)**	**14 (6.4)**
Moderate gain (10–29 letters gained)	**258 (12.4)**	**40 (18.2)**
Stable (<10 letters gained/lost)	**1498 (71.7)**	**130 (59.1)**
Moderate loss (10–29 letters lost)	**242 (11.6)**	**32 (14.5)**
Severe loss (≥30 letters lost)	**49 (2.3)**	**4 (1.8)**

Table 2. Change in Brolucizumab Interval at 12 Months of Brolucizumab Treatment

Characteristics	Treatment-Experienced Eyes (n = 2,015)
Change in weeks (median, IQR)	**+3.0 (1.0–5.0)**
Interval extended by ≥1 week, n (%)	**1,554 (77.1)**
No change (extension of 0–6 days), n (%)	**206 (10.2)**
Interval reduced by ≥1 week, n (%)	**225 (12.7)**
Number of eyes extended on brolucizumab, stratified by length of interval extension, n(%)	**(n = 1,554)**
Extension of 1–3 weeks n (%)	**693 (44.6)**
Extension of ≥4 weeks n (%)	**861 (55.4)**
Change in weeks stratified by pre-switch interval, median (IQR)	
<4 weeks pre-switch interval (n = 23)	**+5.1 (3.1–6.0)**
≥4–<8 weeks pre-switch interval (n = 1398)	**+4.0 (2.0–5.6)**
≥8–<12 weeks pre-switch interval (n = 393)	**+1.7 (-0.1–4.0)**
≥12 weeks pre-switch interval (n = 201)	**-5.9 (-12.9– -1.1)**

Figure 1. Difference Between Brolucizumab Injection Interval at 12 months and anti-VEGF Pre-Switch Interval Among Treatment-Experienced Eyes



Conclusion

In this real-world study of 12 months of brolucizumab treatment, >85% of treatment-experienced eyes maintained or improved VA, and more than 75% had a treatment interval extension of 7 or more days. Switching to brolucizumab treatment can provide additional benefit for patients especially those with high anti-VEGF treatment burden.

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