

# Association between anatomical and clinical outcomes in patients treated with anti-vascular endothelial growth factor for neovascular age-related macular degeneration

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## Abstract

**Purpose :** Treatment regimens using anti-vascular endothelial growth factor (anti-VEGF) therapy for neovascular age-related macular degeneration (nAMD) generally aim to dry the neovascular lesion, however recent evidence suggests that some fluid, particularly subretinal fluid (SRFL), may be tolerated. We assessed the relationship between fluid and visual outcomes using real-world data to test this hypothesis.

**Methods :** Treatment-naïve eyes in the Fight Retinal Blindness! registry treated for nAMD from 1st January 2010 to 1st June 2018 were identified. Lesion activity was graded by practitioners as inactive, active (more than SRFL [i.e. had intraretinal fluid]) or active (SRFL only). Eyes were grouped based on their initial activity and their predominant activity status during the 12 months of follow-up. The primary outcome was the 12-month mean change in visual acuity (VA) between lesion activity subgroups.

**Results :** There were 555 eyes eligible for the analysis. Visual outcomes between eyes that were initially active (any fluid) and initially active (SRFL only) were similar ( $P =$

0.233), with slightly higher gains (mean [95% CI]) observed in initially active (more than SRFL only) eyes after multivariable adjustment (5.9 [4.4, 7.4] vs. 5.0 [2.3, 7.7] letters). However, mean baseline and final VA were worse in eyes that were initially active with more than SRFL only than in eyes with SRFL only (56.0 vs. 63.6 letters at baseline;  $P < 0.001$  and 61.7 vs. 67.5 letters at 12 months;  $P = 0.002$ ).

There was a significant difference in visual outcomes over 12 months between the 3 predominant activity groups ( $P = 0.010$ ). Predominantly inactive eyes gained the most mean (95% CI) VA at 12 months (7.2 [4.8, 9.6] letters), followed by predominantly SRFL only (7.0 [2.3, 4.7] letters), with predominantly any fluid eyes performing the worst (3.6 [2.1, 5.6] letters) after multivariable adjustment (Figure 1).

**Conclusions :** Eyes that were predominantly active with more than SRFL only had worse outcomes than eyes that were predominantly inactive or active with SRFL only. The presence of SRFL did not appear to have a detrimental effect on 12-month outcomes.

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