# Audit of First-year Visual Acuity and Central Retinal Thickness Outcomes of Neovascular Age-related Macular Degeneration treated with Aflibercept at the Oxford Eye Hospital

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## OBJECTIVES

To compare the visual acuity (VA) and central retinal thickness (CRT) outcomes in the Oxford Eye Hospital (OEH) after one year of Aflibercept treatment in neovascular age related macular degeneration patients against standards published in the literature and consider demographic predictive factors for VA outcomes.

## PARTICIPANTS

Treatment-naïve patients who attended Oxford Eye Hospital and received their first injection of Aflibercept between 1st January 2017 and 1st July 2018.

- 367 eyes of 358 patients were included
- Mean age was 82.4 (+/- 7.4)
- 60% were women
- Mean baseline VA was 55 (+/- 17)

| Study | Oxford Eye Hospital 2017-18 AMD Outcome Audit | UK Aflibercept Users Group (AUG) Audit First Year outcomes | Moorfields Eye Hospital Aflibercept Audit 1 year | VIEW 1 2q8 arm week 52 | VIEW 2 2q8 arm week 52 |
|---|---|---|---|---|---|
| Age in years | 82.4 (7.4) | 80.0 (8.3) | 78.0 (8.9) | 77.9 (8.4) | 73.8 (8.6) |
| VA in ETDRS letters | 55 (17) | 54 (15) | 56 (18) | 56 (13) | 52 (14) |
| CRT in micrometres | 430.5 (146.7) | Not reported | Not reported | 324.4 (111.2) | 342.6 (124.0) |
| Sex: % female | 60% | 63% | 61% | 59% | 57% |

*Table 1: Baseline demographics*

## METHODS

A retrospective analysis of VA (ETDRS letters) and CRT in micrometres at 3, 6 and 12 months was performed. Age, sex, and diabetic status, where available, were recorded from Medisoft.

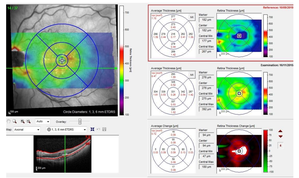


*Fig.1: Sample CRT measurements*

Aflibercept treatment year 1 protocol comprised a loading phase with 3 injections at 1-monthly intervals, followed by 2-monthly interval injections with additional injections if activity was noted on interim imaging.

| Treatment Regimen | Follow-up Interval |
|---|---|
| Loading phase - 3 injections at monthly intervals of Eylea | 4 months OCT and review |
| Year 1 receive a further 4 injections at 2 monthly intervals of Eylea | 8 months |

*Table 2: Treatment and follow-up schedule*

## RESULTS
### Primary Outcomes

| Parameter | Oxford Eye Hospital 2017-18 AMD Outcome Audit | UK Aflibercept Users Group (AUG) Audit First Year outcomes, first-treated eyes | Moorfields Eye Hospital Aflibercept Audit 1 year | Integrated analysis of VIEW studies 2q8 arm week 52 |
|---|---|---|---|---|
| Number of eyes | 367 | 1840 | 3357 | 607 |
| Mean baseline VA in ETDRS letters | 55.4 | 52.7 | 54.4 | 53.6 |
| Mean number of injections | 7.2 | 7.0 | 7.2 | 7.5 |
| Mean VA change (letters) | +1.9 | +5.1 | +4.1 | +8.4 |
| <15 letter vision loss (stable) | 85.8% | 92% | 65% | 95.3% |
| >15 letters gained (improved) | 17.7% | 18% | Not reported | 30.9% |
| >15 letters lost (worse) | 14.2% | 8% | 35% | 4.7% |
| Mean change in CRT at 12 months | -127 | Not reported | Not reported | -139 |

*Table 3: Study results against standards*

**Visual acuity:**

- Improved (gained >15 ETDRS letters) in 65 eyes (17.7%)
- Remained stable in 250 eyes (68.1%)
- Deteriorated in 52 eyes (14.2%)

**CRT:**

Mean change was -132 microns (+/- 146)

## Study Caveats

Of the patients initially selected from Medisoft for this study:

- 46 patients did not complete the 1 year protocol however were included in intention to treat analysis
- Treatment refusal was primarily due to pain
- Atrophic chronic changes rendered further treatment unhelpful and fall outside of NICE guidelines for treatment

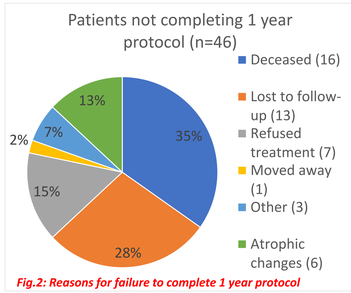
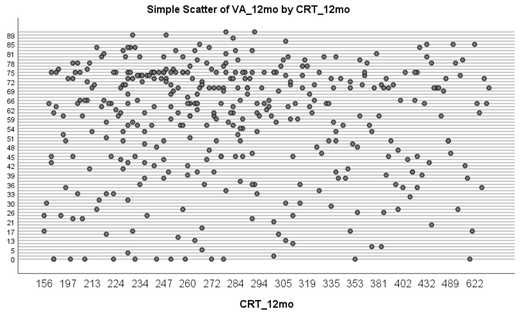
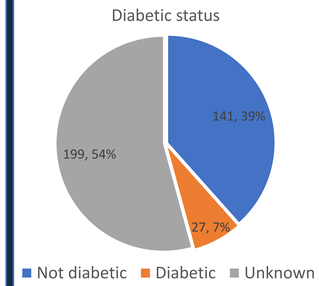


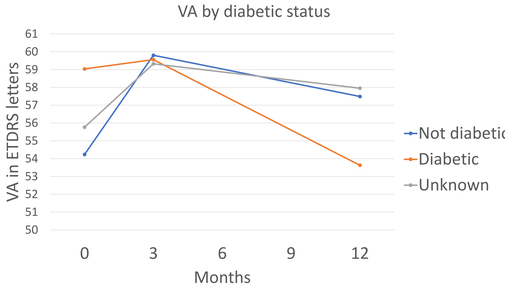

*Fig.2: Reasons for failure to complete 1 year protocol*

## Secondary Outcomes

- No correlation between VA and CRT
- Apparent association between diabetic status and poor VA outcomes, however inconclusive (54% had no recorded diabetic status)




## CONCLUSIONS

**These outcomes are in line with national standards**, using the results of the Aflibercept User Group from 2016 for comparison. However, Phase 3 studies (VIEW1/2) demonstrated better VA and CRT outcomes; this might be due to being in a study environment, and a poorer baseline VA, with greater room to improve.

### Future Work

- To record presence and location of fluid and haemorrhage on OCT
- Mandatory diabetic status recording
- FailSafe protocol for patients lost to follow-up
- Improvement in analgesia provision for intravitreal injection