Long-term efficacy of Aflibercept in Diabetic Macular Oedema: A 36-Month Real World Analysis

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Background

Diabetic Macular Oedema (DMO) continues to rank amongst the commonest causes of visual impairment among working-age diabetic adults. Anti-VEGF treatments such as Aflibercept have shown impressive efficacy scores across multiple controlled clinical trials. However, transferring these results into practical outcomes has proved difficulties due to obstacles such as treatment burden, variable adherence, and diverse patient profiles.

There is a growing need to evaluate long-term, real-world outcomes to better inform clinical decisions regarding Aflibercept as a DMO treatment option. This retrospective study investigates the effectiveness of aflibercept over a 36-month period in a UK NHS setting.

We examined trends in best corrected visual-acuity (BCVA) and central foveal thickness (CFT), assessed treatment frequency, and explored the correlation between anatomical and functional outcomes over the study period.

Methodology

This was a retrospective, single-centre cohort study conducted at Great Western Hospital, UK.

124 eyes were included for data collection. All patients included were diagnosed with centre-involving Diabetic Macular Oedema and treated with intravitreal aflibercept between December 2015 and June 2019.

Patients received a loading phase followed by a PRN treatments based on disease activity.

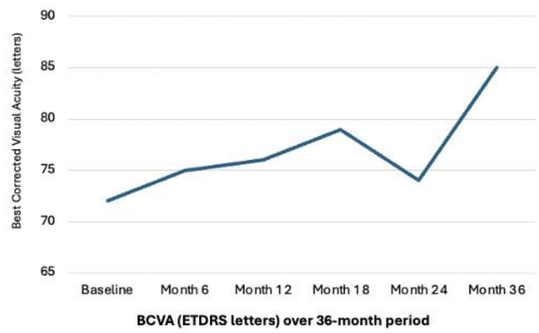
Data was collected at baseline, 6, 12, 18, 24 and 36 months, including:

- Best corrected visual acuity (BCVA) (ETDRS letters)
- Central Foveal Thickness (CFT) (µm)
- Injection count and clinic visit frequency

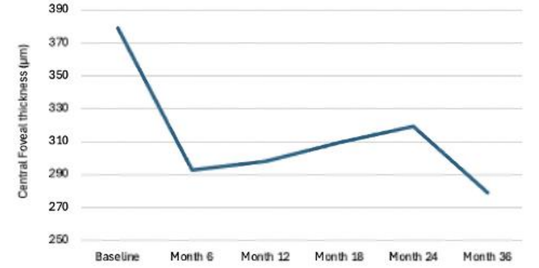
Statistical Analysis

- Descriptive statistics (median, IQR, mean, SD)
- Non-parametric tests for comparisons

Results



BCVA (ETDRS letters) over 36-month period

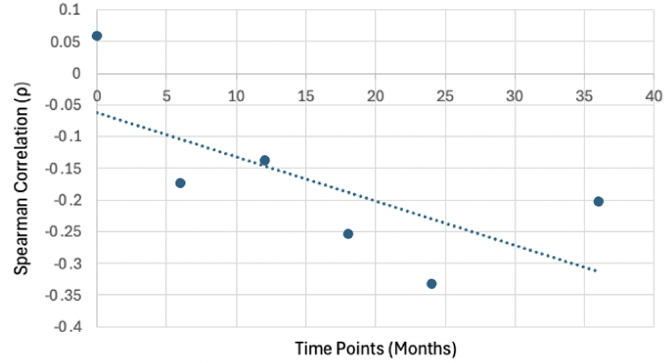


CFT (µm) over 36-month period

Safety
Adverse effects occurred in 2.42% of eyes, supporting the positive safety profile of Aflibercept, as reported in the meta-analysis by Virgili et al.

Interpretation
The relationship between retinal thickness (CFT) and visual acuity (BCVA) was dynamic. While weakly linked initially, a significant correlation at 24 months indicated that reduced CFT was more predictive of better vision at this stage. The later weakening of association suggests that long-term visual outcomes are influenced by factors beyond just macular thickness, even though Aflibercept effectively improved both CFT and BCVA over 36 months.

Discussion



BCVA vs CFT Analysis (Spearman Correlation) (p)

Visual Acuity
Median BCVA improved over the 36-month period from 72 to 85 letters (IQR: 80-85). The improvement was consistent with gains reported in long-term real-world studies such as Lukic et al. At 12 months, findings aligned with Ciulla et al. and were within the range of other studies including Lukic and Sivaprasad.

Retinal thickness
Median central foveal thickness (CFT) reduced from 379 µm (IQR: 320–468) at baseline to 279 µm (IQR: 236–373) at 36 months, indicating a consistent response. These reductions are comparable to those reported by Lukic et al. and other real-world cohorts.

Conclusion

Aflibercept treatment for DMO in a real word setting resulted in improvements in both visual acuity and retinal thickness over 36 months. These improvements were consistent across age groups and in concordance with other published real-world study outcomes. This reinforces Aflibercept's role as an effective and safe treatment option for the treatment of DMO. Future studies should explore the impact of treatment frequency and adherence on long-term outcomes especially in under-treated populations. Further stratification based on lens status, disease duration and HbA1c control may help optimise treatment strategies and personalise care for DMO.

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