

Finding the Right Time:

Optimizing Anti-VEGF Treatment and Quality of Life after Cataract Surgery

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On January 13, 2023, Claudia Emilia Taipale defended her thesis “Age-related Macular Degeneration: Optimizing Anti-VEGF Treatment and Quality of Life After Cataract Surgery” at the Faculty of Medicine at the University of Helsinki. The PhD project was conducted at the Departments of Ophthalmology at Kymenlaakso Central Hospital and Helsinki University Hospital. Her supervisor was Raimo Tuuminen, MD, PhD, Helsinki Retina Research Group, University of Helsinki, and Department of Ophthalmology, Kymenlaakso Central Hospital.

Key points:

- Most eyes resistant to previous treatment with bevacizumab expressed a positive anatomical response to treatment with aflibercept, but the long-term visual acuity outcomes were modest for most eyes.
- The anatomical and visual acuity outcomes were comparable between the moderate- and rapid-extension protocols at one and two years, with fewer aflibercept injections in the rapid-extension protocol.
- Patients with severely impaired visual acuity due to advanced bilateral AMD may benefit from bilateral cataract surgery for their vision-related quality of life.

Age-related macular degeneration (AMD) is the leading cause of progressive and permanent visual impairment and blindness worldwide. The introduction of intravitreal anti-vascular endothelial growth factor (anti-VEGF) agents has significantly reduced blindness and visual impairment caused by wet AMD. Healthcare systems in developed countries now face challenges in the treatment of wet AMD caused by a growing disease burden due to the aging population, increasing costs of the new steeply priced anti-VEGF drugs, and the chronic nature of the disease, which requires long-term treatment and monitoring.

AMD is a usual comorbidity in eyes undergoing cataract surgery, and it is a known factor for inferior visual outcomes and patient satisfaction compared to eyes without comorbidities. Most patients with AMD benefit from cataract surgery in terms of visual function and quality of life (QoL), but the evidence of the benefits for patients with advanced AMD and very poor preoperative

visual acuity is more limited.

We first evaluated the efficacy of aflibercept in patients with wet AMD resistant to previous treatment with bevacizumab using a treat-and-extend (T&E) regimen. The results of this retrospective, register-based study showed that treatment with aflibercept resulted in positive anatomical outcomes in most eyes resistant to previous treatment. However, the positive anatomical results did not correlate with the restoration of visual acuity in our study.

We then compared the clinical outcomes and treatment burden of two different variants of the T&E protocol using aflibercept for treatment-naïve patients with wet AMD. In this prospective randomized clinical trial, the patients received three monthly aflibercept injections and were then randomized to two different treatment protocols, in which the lengthening of the treatment interval was either moderate or rapid. In the moderate-extension protocol, the treatment interval was first extended by

one week at a time up to 12 weeks and then by two weeks at a time up to 16 weeks. In the rapid-extension protocol, the treatment interval was extended to eight weeks after the induction phase and then by two weeks at a time up to 16 weeks. The results showed that the anatomical and visual acuity outcomes were comparable between the two treatment protocols at one and two years, despite fewer injections in the rapid-extension protocol.

Finally, we determined whether bilateral cataract surgery affected the QoL of patients with severe vision impairment due to advanced bilateral AMD. Vision-related QoL was measured with the National Eye Institute Visual Functioning Questionnaire-25 (NEI VFQ-25) preoperatively, at three months, and at one year. In our analysis of the questionnaire, the vision-related QoL improved, including peripheral vision, mental health symptoms due to vision, and role difficulties due to vision one year after bilateral cataract surgery.

References

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