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Commentary

Clinical Significance of Ocular Toxicity

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DESCRIPTION

In the United States, one of the top ten causes of disability is vision loss, mainly due to age-related eye diseases, such as age-related macular degeneration. As the population ages, the number of people affected by this situation is expected to increase. Patients are increasingly turning to the Internet for health-related information, but there are no standards for published websites. Background: This study aims to identify biomarkers of optical coherence tomography to predict the response of diabetic macular edema to anti-VEGF treatment. A retrospective study was conducted.

Bilateral patients who had asymmetric responses to loading doses of anti-VEGF therapy (Ranibizumab/Aflibercept). The morphological response criterion is the thickness of the central subfield, and the asymmetric response is defined as a difference of ≥ 10% reduction in the CST of the eyes. The functional response criterion is an increase in log MAR acuity ≥ 3 lines, and an increase in the other eye below this threshold is considered an asymmetric response. The relationship between the final morphological and functional response to anti-VEGF treatment and the baseline values of the following OCT-derived biomarkers was evaluated: DME subtype, CST, abnormal vitreoretinal interface, disintegration of the inner layer of the retina, changes in the outer membrane, ellipsometry changes in the spherical area and subretinal fluid.

After the anti-VEGF loading dose, 31 eyes meeting the morphological and functional response criteria were classified as responders, while 27 eyes that did not respond morphologically or functionally according to the defined criteria were classified for resistance. Eyes that showed only functional or morphological responses were excluded due to the small number. The presence of simple epiretinal membrane is not related to any difference in treatment response, while traction ERM, extensive DRIL and ELM and EZ in the 1000 μm area centered on the fovea are OCT Biomarkers important for predicting drug resistance. The multi-layer perceptron model rated the predictive ability of ELM interruption as 100%, traction ERM as 51.7%, DRIL as 25.4%, and EZ interruption as 24.5%. Antisense oligonucleotides are single-stranded synthetic nucleic acid fragments that can bind to specific complementary messenger RNA (mRNA) sequences and change the final gene product. AONs were initially approved for the treatment of cytomegalovirus retinitis and showed promise in the treatment of systemic Mendelian disease. AON is currently being studied as a treatment for many eye diseases, including inherited retinal disease, inflammation, and wound healing after glaucoma surgery and macular degeneration. They provide a possible solution for gene therapy of IRDs that are not candidates for adeno-associated virus delivery. This chapter describes the historical background of AON and reviews the clinical applications and ongoing clinical trials. The emergence of SMILE in the last decade provides an alternative to LASIK for patients considering corneal laser refractive surgery. SMILE provides a new method of using a femtosecond laser to create micro lenses within the matrix, which can be removed through a small 3-4 mm incision. The purpose of this study is to review the recent literature on popular SMILE claims (reduce iatrogenic dry eye, better restore corneal sensation, and improve corneal biomechanics) to summarize published results and determine which claims are myths and facts. After the US Food and Drug Administration recently approved its treatment for myopic astigmatism in October 2018, SMILE as a refractive technology is still in its infancy in the United States. Future randomized controlled studies should compare their results with LASIK, which has good visual effects, quick postoperative recovery, and good safety.

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