MODULE 9.12
Summary

The treatment paradigms for the treatment of diabetic macular edema (DME) are rapidly evolving. Vascular endothelial growth factor (VEGF) has been shown to play a central role in DME.[1,2] This has driven research efforts for the development of several agents that block the actions of VEGF in the retina. Anti-VEGF treatment represents a major advancement in the management of DME.

A clearer understanding of how anti-VEGF therapy should be administered to treat DME has been determined through the results of clinical trials. Studies have shown promising results with treat-and-extent dosing protocols.[3-6] However, several questions remain:

- When is it best to start anti-VEGF treatment? Do we treat an eye with:
    - o A visual acuity of 20/30 (6/9)?
    - o Surrounding atrophy of the retinal pigment epithelial?
    - o Extensive lipid hard exudates with little edema?
    - o Evidence of macular ischemia but with edema?
- When should we stop treatment?
    - o How do we define success?
    - o How do we decide that treatment has failed?
- What are appropriate injection intervals?
    - o How effective is treat-and-extend?
- What is the best approach to manage concurrent proliferative diabetic retinopathy and DME?
- Which agent is better?
    - o Is there a role for sequential treatments?
- How do we manage bilateral disease?
- Are anti-VEGF agents safe?
- How is anti-VEGF's efficacy and safety compared with the real patient experience of receiving treatment?
    - o Are the numbers of injections reduced?
    - o Does this have a positive effect on the treatment burden to the:
- Patient?
- Caregiver?
- Clinic?
    - o Does the reduction in injections equate to a cost savings for the patient?
- Medication costs?
- Travel costs?
    - o Are the adverse events (AEs) reduced?
- Do fewer injections translate into a reduction of injection-related AEs?

Other types of treatment may be useful as monotherapy or adjunctive therapy to anti-VEGF agents. Corticosteroids have emerged as an alternative therapy for persistent DME or DME that is refractory to conventional laser photocoagulation and other treatments.[7] Two new recently approved inserts provide prolonged delivery of these medications. Micropulse lasers produce multiple short bursts of laser resulting in less injury to the adjacent photoreceptors and choriocapillaries.[8] Vitrectomy appears to be a useful technique in eyes of patients with DME and vitreomacular traction.[9] Several new agents, some with different mechanisms of action from current therapies, are being explored for the treatment of both age-related macular degeneration and DME. Swept-source OCT, the latest technological advance in retinal and choroidal imaging, allows the retinal specialist to obtain widefield B-scans and more accurate 3D imaging of the vitreous, retina, and choroid.[10]

The translation of findings from randomized clinical trials needs to be taken in context of real-life settings of the diabetes patient with multiple medical comorbidities. When reviewing clinical information, one has to keep in mind that randomized clinical trials represent situations in which the patients receive nearly optimal care. The reality is that only 59.7% of patients (based on the 2010 *JAMA Ophthalmology* study) say that they have received an eye examination with pupil dilation in the last year.[11] Among individuals with DME, about 28.7% were visually impaired (<20/40 in the eye with DME) based on visual acuity at the initial examination. In other words, they have progressed to more serious stages of the disease process. It is apparent that many individuals with diabetes mellitus are not getting the care they need to prevent visual impairment and blindness. Strategies to increase awareness, both for patients and primary care physicians, are needed.

References

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