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March 2018

Optimizing Visual Outcomes in Patients with Neovascular AMD Through Early Detection

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Visual acuity (VA) outcomes for patients with neovascular age-related macular degeneration (nvAMD) have improved dramatically since the advent of anti-vascular endothelial growth factor (anti-VEGF) medications but a majority of treated patients still experience compromised vision — for example, difficulty with reading and inability to meet driving vision requirements. Unmet needs in treatment efficacy (best-corrected VA) and treatment burden (frequency of injections) exist.

Early detection of nvAMD may be a highly effective method to improve VA outcomes. Specifically, more favorable VA outcomes can be achieved when treatment is initiated early in the course of nvAMD, at a time when choroidal neovascular lesions are smaller and VA is better.^{1,2} The following medical adage holds true in nvAMD: early detection of disease with prompt treatment portends a better prognosis.

The Comparison of Age-related Macular Degeneration Treatment Trials (CATT) demonstrated that baseline VA predicted mean VA at one and two years³ (Figure 1). Although eyes with worse baseline VA gained more letters compared to eyes with better baseline vision, final VA was significantly associated with VA at presentation.⁴ While a large relative change in VA may appear impressive, a patient's quality of life is most impacted by his or her absolute VA. Herein lies the challenge: ophthalmologists must focus on early detection of nvAMD with the goal of optimizing vision.

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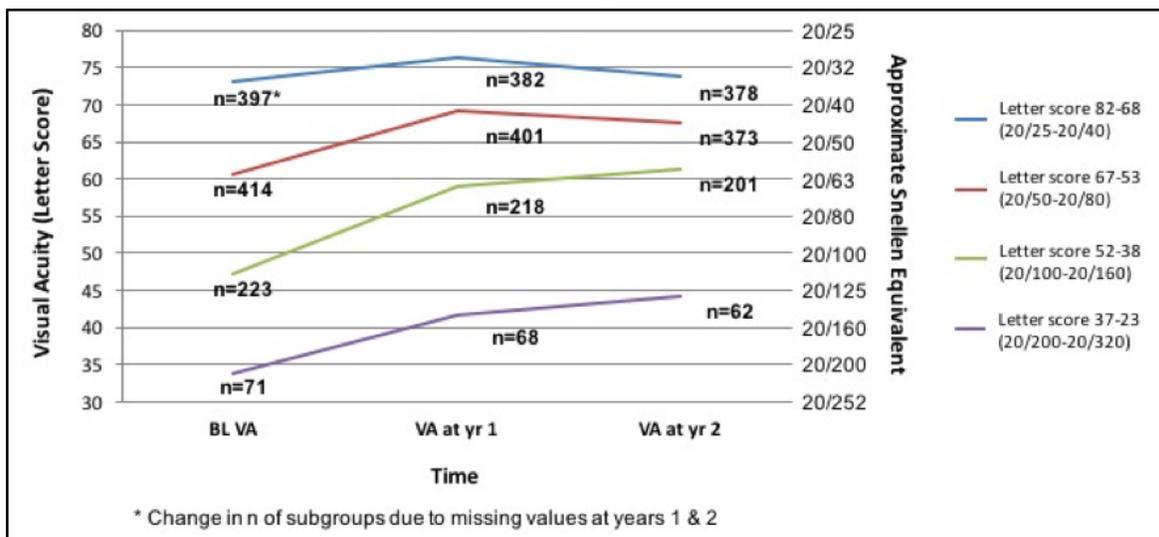


Figure 1. Mean Visual Acuity (VA) at 1 and 2 Years in the CATT Study by 4 Baseline VA Groups

In order to achieve better VA results, an important strategy is to detect nvAMD as close as possible to the time of conversion from intermediate dry AMD. Data show that patients lose an average of 15 to 25 ETDRS letters of vision between the time they convert to nvAMD and the time of diagnosis and treatment initiation.⁵ It is believed that closely monitored patients participating in the control arms of AMD studies convert to nvAMD seven to 10 months before diagnosis and treatment initiation. In community-based “real world” studies and registries (detection in such contexts is likely even more delayed), average baseline vision at the time of nvAMD detection is similar or slightly worse than that observed in tightly controlled clinical trials. Recent data from the IRIS Registry, which included more than 2.2 million patients with nvAMD in the United States, demonstrated that average VA at initiation of nvAMD therapy was approximately 20/80.⁶ Clearly, nvAMD is not being detected early enough to optimize visual outcomes.

How do we try to decrease the lag in nvAMD diagnosis and provide our patients with the best possible VA outcomes? One strategy is to improve the monitoring of patients with dry AMD at high risk for converting to nvAMD. With the impracticality of constant office visits, at-home monitoring makes sense. The most commonly used home monitoring tool is the Amsler grid. Although it is inexpensive, the Amsler grid offers limited diagnostic accuracy and patient compliance is highly variable.^{6,7}

Digital home monitoring technologies enable early detection of conversion from intermediate dry AMD to nvAMD. ForeseeHome preferential hyperacuity perimetry (PHP) device (Notal Vision) has been 510(k) cleared as the first home monitoring system for patients at risk of vision loss from undetected nvAMD and has been validated in the AREDS2 Home Monitoring of the Eye Study.⁸ The HOME Study was halted early by the Data Safety and Monitoring Committee because of the strong evidence demonstrating early detection of CNV with the ForeseeHome device. In the primary outcome analysis, patients in the ForeseeHome device group who used the device as instructed at least twice a week showed significantly better VA outcomes, with a median loss of 3.0 ETDRS letters (ForeSeeHome monitoring) from baseline to the time of CNV detection, compared with a loss of 9.0 ETDRS letters in the control group (usual care Amsler grid and/or report of symptoms). Additionally, 94% of patients using the ForeseeHome device as directed maintained 20/40 or better VA at the time of CNV detection, compared with only 62% of patients in the control arm using traditional detection methods.

ForeSeeHome is a covered service (80%) by Medicare for patients with a diagnosis of intermediate AMD and VA better than or equal to 20/60 in the eye to be monitored. The device connects to an Independent Diagnostic Testing Facility (IDTF) that transmits alert data directly to the patient’s ophthalmologist. Patients are monitored for changes in the central visual field, including metamorphopsia and scotoma, which may signify early onset of nvAMD.

Dry AMD is a chronic disease that can progress rapidly to nvAMD and lead to severe vision loss if left undiagnosed and untreated, impacting a person’s quality of life significantly. While there is currently no treatment for intermediate dry AMD other than lifestyle modifications and AREDS/AREDS2 nutritional supplements, numerous studies demonstrate the benefit of initiating anti-VEGF therapy early once conversion to nvAMD has

occurred. Earlier detection of nvAMD is an important strategy to optimize the visual outcomes of patients with nvAMD.

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