Author Response: Additional Considerations in the Utility of Dark Adaptometry for the Diagnosis of Age-Related Macular Degeneration

Dr VanderBeek\(^1\) raises the interesting question of the utility of using dark adaptation testing as a screening tool for AMD. For a screening test to be desirable, it is necessary to have an accurate diagnostic test and intelligently select the population to be screened. Our study\(^2\) demonstrated that a rapid test of dark adaptation has an accuracy of 90% for AMD, which is comparable to the 89% accuracy of visual field testing for glaucoma.\(^3\) What population should be screened? As Dr VanderBeek notes, broad-based screening would result in many false-positives because the overall prevalence of AMD is low in absolute terms. However, the prevalence of AMD in adults 40 years and older (6.5%)\(^4\) is three times greater than the prevalence of glaucoma (2%).\(^5\) and few would question the value of visual field testing in glaucoma. This is because physicians use clinical judgment to limit testing to appropriately high-risk populations. For example, we would suggest that adults 60 years and older might benefit from screening for AMD. The prevalence of AMD in this population is 13.4%.\(^4\) Screening 1000 people would result in 204 abnormal dark adaptation tests. Of those abnormal dark adaptation tests, 66% or two-thirds would be caused by AMD. Furthermore, it would be important to examine thoroughly the remaining one-third. Although they may not have AMD, they do have grossly abnormal dark adaptation, indicating some underlying pathology.

In primary eye care, the most commonly measured visual function is visual acuity. Visual field testing has become routine because glaucoma does not affect visual acuity until late in the disease. In a similar fashion, dark adaptation testing reveals a large functional impairment in patients with early to intermediate AMD and normal visual acuity. We consider dark adaptation testing to be part of the armamentarium of diagnostic tests that are useful for the detection of AMD, not a replacement for dilated fundus examinations or imaging. Functional measurements of vision combined with imaging has been and continues to be a sound diagnostic approach.

We also would like to correct two minor misunderstandings. Dr VanderBeek is concerned that our study did not include early AMD patients. In fact, the study population included the full range of early to late AMD patients. The only individuals excluded were those graded as step 2 on the AREDS 9-step severity scale.\(^6\) These patients exhibit minor pigmentary changes or a limited amount of medium drusen, which may or may not be caused by AMD. In addition, the high attrition rate in our study was simply due to the lack of a formal screening visit, which meant that subjects not meeting inclusion/exclusion criteria were eliminated after testing rather than before testing.

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