Building an AMD Center of Excellence

Actively engaging patients to build awareness and following up with thorough testing will help prevent vision loss from AMD.

BY HARVEY P. HANLEN, OD

The potential for age-related macular degeneration (AMD) to cause a loss of visual acuity has been well documented. Research has been focused on determining the early indicators of the disease to improve the diagnosis and prognosis, with the belief that intervening earlier may slow or prevent the loss of vision. Ongoing studies will help to clarify the role of nutritional supplementation and other preventive measures; nevertheless, the ability to engage patients early in the disease process is important to provide education about modifiable risk factors.

The problem for eye care specialists has traditionally been in getting to patients early in the disease course before irreversible damage occurs. Traditionally, eye care specialists have relied on routine vision examinations to screen for risk factors that might indicate later disease, or else they recognize AMD after the onset of signs and symptoms of the disease during an office visit. This paradigm leaves too much to chance, as there is great potential to miss early-stage eye disease. It would be far more beneficial to educate and evaluate patients earlier so that if there is a conversion to the wet form of AMD, a prompt referral for injection can occur to help save some vision.

There is a tremendous potential for eye care specialists to create their own AMD center of excellence focused around the idea of building disease awareness, encouraging patients to have a thorough AMD evaluation, and then instituting measures that can help them preserve the vision they have and prevent future loss.

AMD CENTER OF EXCELLENCE

ECR Vault (Comsquared Systems, Inc.) offers an organized solution to get in contact with potential AMD patients. This program mines the eye care specialist's records to identify patients with risk factors that indicate the potential to develop AMD and secondary vision loss. The system sends an e-mail to patients older than 50 years of age containing a brief educational message and urges them to contact their eye care specialist for a full AMD consultation and workup.

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I recently instituted the e-mail system in my office, as well as a monitoring program to see how many patients actually opened the e-mail. Within 2 hours of sending out the targeted message to 600 potential patients, 48 people had opened it. I believe that means patients are knowledgeable about this topic and desire information and resources.

Actively engaging patients and encouraging them to come to the office is a potential practice builder. The rationale for designing an AMD center of excellence, however, is predicated on educating patients and preventing vision loss. This kind of e-mail program is a proactive approach to help patients maintain healthy vision throughout their lifetimes.

USING THE INFORMATION

The second component of the AMD center of excellence is testing and evaluation.

Clinical Evaluation

In my practice, I review the relevant risk factors with patients, including their family history—an important component. This visit is also an opportunity to remind patients that certain factors are within their control and can help mitigate the loss of vision, namely smoking history, cholesterol, and diet. Each patient is given an Amsler grid test in the office and one to take home and repeat.

Retinal Imaging

A central part of evaluating patients for AMD is the use of optical coherence tomography to image the retina and particularly the macula. I use the Spectralis (Heidelberg Engineering) to assess for the presence of drusen and subretinal fluid, which is suggestive of choroidal neovascularization. This device has an optional imaging mode that allows autofluoresence without contrast (to my knowledge, Spectralis is the only device to offer this feature). This Blue Peak imaging takes advantage of the naturally fluorescent property of lipofuscin, which is a common finding in aging retinal pigment epithelium cells. Published studies have correlated proliferation of lipofuscin, seen as "hot spots" in the images, with the progression of geographic atrophy. Blue Peak is also helpful for identifying and following drusen, which may in turn be a harbinger of AMD.

One of the features of Blue Peak technology is its ability to create sequences of autofluoresence images taken at different visits, creating a dynamic movie, which is useful for tracking disease progression or regression. The resulting images are a very clear representation of the activity in the back of the eye.

Other features of the Spectralis make it an invaluable tool for assessing macular health. The device features TruTrack, dual-beam scanning technology, which tracks the eye's movement during scanning. This technology helps mitigate eye motion artifact in scans and enables the AutoRescan feature, which permits precise follow-up scans. Combined, these features provide interscan consistency within 1 µm offering confidence that the same area of the macula is being assessed from visit to visit.

In my clinical practice, the pixel-to-pixel correlation between the OCT and fundus scans means I can see exactly what is going on at the back of the eye, and I can be more certain whether patients need to be referred out for further evaluation.

Other currently available OCT devices offer proprietary AMD tracking mechanisms. For example, drusen mapping is available on at least two other devices: the Cirrus (Carl Zeiss Meditec) and 3DOCT-1000 (Topcon Medical Systems, Inc.). Segmentation algorithms available on some devices, which permit detailed analysis of the retinal layers, appear to be useful for recognizing subtle architectural changes.

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Genetic Testing

If I do detect drusen on the retina, I will order a genetic laboratory test (MaculaRisk) for the patient. This test requires a cheek swab, which is sent to a central laboratory and analyzed. A report, sent to the office in about 2 weeks, fully explains the individual's likelihood of converting to macular degeneration with vision loss. For qualified patients, most insurance companies—including Medicare—will cover the laboratory costs, and so there is little or no cost if the patient qualifies. Occasionally, the patient may have to pay an office visit copayment of about $25, but that normally is the extent of financial outlay by the patient.

Based on the results of the test, a number of large national retinal groups have come up with protocols for how these patients should be managed. Patients determined to be in the lowest risk categories 1 and 2 are generally seen once a year. Those at risk level 3 should be seen twice a year. Individuals who are risk level 4 should be seen three times a year; and those at risk level 5 need to be followed four times a year for scans to monitor for potential progression.

Supplementation

The preferred type and use of nutritional supplementation in preventing progression to worse disease is still unclear. Large-scale studies like the Age-Related Eye Disease Study (AREDS) have shown that taking high levels of antioxidants and zinc can reduce the risk of developing advanced AMD by about 25%.[1] Subsequent to the release of that study, there has been interest in adding meso-zeaxanthin to the nutraceutical regimen, because it may be effective in maintaining the production of macular pigment.[2,3] Meso-zeaxanthin is currently being studied in the United States, but those results are not yet available.

I have been using supplements in my practice for about 1.5 years, and I have seen patients with reduction in drusen and improvement in visual acuity. There may need to be further study of the effects of nutritional supplementation before it is more widely adopted, but there is already evidence from Europe suggesting its benefit.[2,3] The results of AREDS2, which is studying the addition of omega-3s to the AREDS formulation, should be reported in the next 2 years, but it is unlikely to change practice significantly. For instance, this work did not study meso-zeaxanthin

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supplementation, which I believe to be important in preventing AMD progression.

The overarching goal of nutritional supplementation is to preserve macular pigment, which is measured as macular pigment ocular density (MPOD). Previously, eye care specialists have not been able to reliably measure MPOD in the office setting. A new type of densitometer, which uses heterochromatic flicker photometry to measure MPOD, is in the late stages of development and may improve the ability to measure macular pigment in the clinical setting.[4] The association of MPOD, as a function of lutein and zeaxanthin from the diet, and intermediate AMD is controversial.[5] Still, for patients at risk of losing visual acuity, I think it is best to err on the side of caution. If I recommend supplements to a patient and he or she has a baseline MPOD of 0.35 or 0.4, for example, and then I measure it again periodically to find it has risen to 0.6, 0.65, or 0.7, I believe that is an indication that what I am doing is helping.

CONCLUSION

The goal of building an AMD center of excellence in the practice is to help patients preserve and maintain vision in the first eye. It is a philosophy centered around patients' awareness, testing, and intervening early in the disease course to change modifiable risk factors; and, when necessary, to refer patients for intravitreal injection with appropriate medications. Waiting to preserve vision in patients' second eyes is too late; my goal is, save the first eye. ■

Harvey P. Hanlen, OD, is in private practice in Boalsburg, Pennsylvania. He has no financial interest in any of the products mentioned in this article. Dr. Hanlen may be reached at (814) 466-2020; drhanlen@drhanlen.com.

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