Letters

Gene Expression Profiling in Uveal Melanoma

Congratulations to the authors on a nicely written review on "Gene Expression Profiling in Uveal Melanoma" (July, Ophthalmic Pearls), which points out the necessity for ocular oncologists to be intimately familiar with the molecular genetics of ocular tumors and how this information should (and should not) be used in patient care. They note that the uveal melanoma gene expression profile is a prognostic—not diagnostic—test. This is exemplified by 2 case reports in which the test was used incorrectly in patients with metastatic choroidal tumors misdiagnosed as melanomas.[1,2]

We would like to point out a potentially confusing statement in this review. The authors claim that "gene expression profile class is only one of many features that may help a clinician assess risk of metastatic disease," and they list various clinical, pathologic, and chromosomal features. However, many studies from multiple centers have shown that none of these features adds any prognostic information to that of the gene expression profile in uveal melanoma,[3] save for a small modification imparted by basal tumor diameter.[4,5] The evolution of the gene expression profile classification does not reflect ongoing additions to the classification but, rather, more refined subclassifications.[6] None of these improvements is aided by the inclusion of additional clinical, pathologic, or chromosomal data. It is yet to be determined whether mutational data may further optimize the accuracy of the gene expression profile classification, and this question will be addressed in our multicenter trial, which is sponsored by the National Cancer Institute (http://bit.ly/2u4IdyH).

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1 Seider MI et al. *Ophthalmic Surg Lasers Imaging Retina.* 2014;45(5):441-442.
2 Klufas MA et al. *JAMA Ophthalmol.* 2015;133(9):1073-1076.
3 Onken MD et al. *Ophthalmology.* 2012;119(8):1596-1603.
4 Corréa ZM et al. *Am J Ophthalmol.* 2016;162:20-27 e1.
5 Walter SD et al. *JAMA Ophthalmol.* 2016;134(7):734-740.
6 Field MG et al. *Clin Cancer Res.* 2016;22(5):1234-1242.

Bypassing Progressive Zonular Weakness

We ophthalmologists seem to have forgotten a critical lesson from the past: The zonules continue to weaken with age. In the days of intracapsular/cryo cataract surgery, a simple rocking motion would pull the lens loose easily in patients aged 60 and older. Recently, we have become obsessed with precise refractive error, thinking that in-the-bag placement of the IOL is necessary for this. But as the many late dislocations of in-the-bag implants indicate, the zonules are not to be trusted long-term. *EyeNet*'s "Zonular Weakness and Lens Movement" (July, News in Review) notes that 31.4% of all the researchers' surgical eyes (ages not specified) showed some "looseness" of the zonules, and that was before the manipulation needed to implant an IOL in the bag. A recent study[1] dealing with late in-the-bag dislocations after uneventful cataract surgery found a burgeoning number occurring 6 to 9 years postop. Other reports[2] show that late dislocations have been occurring since 1993, when in-the-bag implants with phacoemulsification became commonplace.

In an attempt to avoid zonular weakness altogether, I have taken to implanting in the ciliary sulcus all-PMMA implants that have a 13-mm overall haptic diameter with a 6-mm diameter optic. This allows for a very robust fixation. An intact posterior capsule helps position the implant; however, even large capsular tears still permit precise, secure placement. Zonular strength becomes nearly irrelevant. The implant stays stable even with major trauma or future vitrectomy.

The downside of using a large, solid optic of 6 mm is, of course, that a larger corneoscleral wound is required. This means a less-precise final refractive error. But again, we are forgetting lessons from the past, namely that a minimal amount of myopic astigmatism gives pseudoaccommodation. And, yes, this can be very precisely corrected with glasses.

Another benefit of extracapsular ciliary sulcus placement using all-PMMA implants is that light toxicity to the macula can be drastically minimized. This is because the microscope can be tilted moderately off-axis so its intense light falls inferior to the macula. (Less of a red reflex is necessary for visualization with this technique.) Even hazy corneas and other optical issues still permit sufficient visualization. It has been well-established that the operating microscope's light source can cause photic maculopathy of alarming degrees.[3] Aiming for precise, in-the-bag positioning requires on-axis visualization, which places the intense light source right on the macula. This is particularly true for premium implants.

Phacoemulsification is not required with this approach. With the larger wound (to permit the larger solid implant), the surgeon can gently slide the nucleus out with a nucleus loop, bypassing ultrasonic toxicity to the endothelium.

Perhaps our obsession with refractive error is causing us to turn a blind eye to the basics.

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1 Kristianslund O et al. *Ophthalmology.* 2017;124(2):151-159.
2 Davison JA. *J Cataract Refract Surg.* 1993;19(5):582-589.
3 Michels M et al. *Surv Ophthalmol.* 1990;34(4):237-252.