PRECISION MEDICINE IS ALREADY HERE


It's just clunkier than we envisioned. Hear us out on this one. Talk of precision medicine—tailoring therapies based on a patient's individual genes, environment, and lifestyle—is all the rage. The possibility that we may one day have therapies that successfully treat common retinal diseases based on a patient's genetic makeup is thrilling. The vision is simple: we see a patient suspected of having a retinal disease, such as AMD, we send out for a genetic test, and the results tell us what's going on—and what treatment would work best. Some patients with Leber congenital amaurosis caused by biallelic *RPE65* mutations already have a small taste of precision medicine.

But we have a long way to go before that's a reality for most people with retinal pathology. For now, we have a slew of "one-size-fits-all" therapeutics that we can recommend—and they work well for most patients. When we see a new patient with signs of wet AMD, it's almost a given that we will recommend intravitreal anti-VEGF injections as the primary treatment. And if a patient walks in with a retinal detachment? It's usually off to the OR for them.

Although the entire clinical picture is important to capture, much of that data is nice to know but doesn't necessarily change our disease management approach all that much; the first step is usually clear.

But when a patient with diabetes walks in with decreased vision, it can feel a little like opening Pandora's box. Depending on the patient's age, disease control, systemic comorbidities, medical and ocular history, clinical examination findings, risk for loss to follow-up, and insurance coverage (to name only a few variables), we might recommend any number of treatment approaches, from intravitreal anti-VEGF injections or steroid injections to panretinal or focal laser treatment to vitrectomy. And *then*, depending on how the patient responds, clinically as well as personally, we might shift between therapeutic approaches to optimize disease control and stave off vision loss. Could you even imagine what a comprehensive decision tree would look like?

But truth be told, each patient already has their own decision tree, and that's what makes caring for patients with diabetes precision medicine at its core. We have robust guidelines to help us (check out the Diabetic Retinopathy Clinical Research Retina Network update on page 42), but at the end of the day, it's the patient's entire story (right down to where they live and their family dynamics) that dictates how we treat them and their potential for ocular complications. We have all chosen panretinal photocoagulation for a patient who would have done just as well with anti-VEGF injections—because we got the sneaking suspicion that they may never pass through our doorway again.

To help you stay focused on the precision care these patients need, this issue addresses the entire experience, from artificial intelligence screening to combatting loss to follow-up, all with the unique patient in mind. As for the treatment approaches themselves, Dilsher S. Dhoot, MD, and Matthew R. Starr, MD, tackle the tough questions of when to intervene and how to proceed based on the patient's changing clinical picture. Once in the OR, David Xu, MD, has some excellent pearls for addressing diabetic tractional retinal detachment. Even surgical intervention for a diabetic patient is more like a series of real-time decisions than a standard approach; "ultimately, it is up to the surgeon to decide how best to manage the unique nuances of each eye," Dr. Xu says in his article on page 53. That just about sums up our entire approach to diabetic eye disease: it depends.

Diabetes is an epidemic and has been for a long time, which means that health care workers and educators have been on a crusade to slow the rising incidence of this (largely) preventable condition for years. By now, we all know that treating these patients isn't enough—we must educate and reinforce healthy habits, over and over. Unfortunately, by the time they are talking to us, it's often too late, and we are on damage control. The best we can do is listen to their story and use all that information to build an individualized treatment plan that works for them—and hopefully preserves their vision. ■


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