

GLAUCOMA PIPELINE 2022



Our second annual look into ongoing innovation.

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Will we ever reach a point where there are too many options for treating glaucoma?

The easy answer is “probably not,” because there will always be situations where patients require a different treatment approach. It is a good thing, then, that there always seems to be something new in the research pipeline offering better efficacy, safety, or both. Some of the pharmacologic and procedural options on the near and distant horizon even offer different approaches for achieving the target pressure relative to current treatments. This is all good news for patients because more options mean a greater chance of individualizing treatment choices while considering impact on patients’ quality of life.

But “more” does not necessarily mean “better.” Perhaps the question we should be asking is whether there will ever be a shift in targeting? That is, will the glaucoma specialist ever gain access to drugs, procedures, or devices that do something fundamentally different than lower IOP?

It has long been accepted that treating the pressure is the only modifiable risk factor for mitigating risk of glaucomatous progression. Indeed, countless patients have benefited from this paradigm. Yet, as the second installment of the Glaucoma Pipeline Poster presented over the next few pages of this issue demonstrates, we stand at the precipice of an entirely new era in glaucoma management, one in which we will be closely monitoring drugs and devices associated with novel targets and effects. In the future, we may not be limited to treating the symptoms. We may soon gain the ability to address the disease.

One of the most exciting, albeit far off, concepts in glaucoma is the idea of disease modification. Research over the past decade continues the foundational work conducted before it in describing the initiating events of

“the silent thief of sight.” As a result, we are closing in on management strategies that might reverse structural damage in the trabecular meshwork, reverse stiffening in the Schlemm canal, and/or impact flow in the distal pathway structures (i.e., collector channels, ostia, and episcleral veins). The usual caveats apply about pipeline candidates and the potential for development to stall—but at least we are starting to talk about completely novel treatment approaches.

Another item in the “hopefully coming soon” category is neuroprotection. Depending on how the category is defined, and if the weight of evidence is correct, some of the already available glaucoma treatment options are associated with indirect mechanisms of neuroprotection. In fact, under a very loose definition of neuroprotection, one could make the case that any effort to lower IOP has the potential consequence of sustaining retinal glial cell viability. However, the concepts now under consideration relate to the potential to regenerate nerve cells and restore functionality to damaged or injured neural pathways. The impact of these approaches could represent a seismic shift in the ability to reverse rather than slow down glaucomatous progression.

Meanwhile, over on the surgical side of things, we are witnessing a groundswell of interest in devices and procedures that offer favorable safety profiles while addressing the mechanisms of aqueous resistance. While lowering IOP remains the primary goal, there is evidence emerging that at least some surgical, laser, and devices restore physiologic mechanisms for pressure control, thus hinting at the ability for disease modification.

In all of science and medicine, excitement for the new and novel must be tempered by the need for data and evidence. The drugs and devices presented in this poster may well peter out at some stage of development. Even if that comes to pass, however,

there will inevitably be valuable learnings from those stalled efforts that could be the spark for something new. After all, progress is not always linear, and sometimes a step back is needed to advance forward.

On the other hand, each of the novel devices and drugs presented in this poster is backed by incredible science. Our clinical experience affords us a perspective to spot a good prospect when we see one. And so, although the scientist in each of us tells us to maintain guarded optimism for the future of glaucoma management, we also maintain tremendous hope that one of these interesting concepts will be coming soon to a clinic near you. ■

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