The Suprachoroidal Delivery Route and Exploring the Potential of Cell-Based Therapies for Age-Related Macular Degeneration

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Authors de Smet et al. present an innovative modification of a previously described flexible catheter that easily tracks within the suprachoroidal space to deliver cell-based therapy, rather than pharmacotherapy, into the subretinal space. The catheter was modified to create a posterior choriodotomy using a microneedle deployed from the catheter tip. Such an approach avoids the complications that arise from a more anterior choriodotomy, or the more commonly used transvitreal and trans-retinal delivery. Many currently proposed surgical techniques have potentially blinding complications of secondary cellular proliferation that occurs along the respective surgical plane and iatrogenic retinal perforations. Could similar complications result using the trans-choriodotomy approach with the flexible cannula and microneedle? The authors have demonstrated that such complications are less likely to occur. Thus, for cellular delivery, the authors are to be congratulated for improving access to the subretinal space; however, there remains concern with the “discontinuity” in the neurosensory retina, as this may lead to similar complications.

Regarding the authors’ stated goal to deliver new, cell-based treatment options for AMD, the reader’s perspective should be more cautious. Cell-based therapies for AMD are currently considered highly investigational and should be introduced into clinical studies only with great caution and with solid preliminary, preclinical data. The use of human umbilical cord tissue–derived cells represents a nonpolarized, noncohesive xenograft when injected in minipigs. Thus, from a cellular replacement or rescue perspective, much more work is needed before the proposed therapy is ready for human clinical trials. Finally, the summary statement of a “mild immune response” to the cellular material may not be accurate. The authors’ findings of inflammatory cells and later retinal granulomas are not surprising, represent meaningful inflammation, and such changes are indicative of the current state of knowledge for this intervention.

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References