Research into Gene Therapy at OCB is Advancing Treatment for Age Related Macular Degeneration

Gene therapy holds the promise of new and better treatment for a wide range of diseases. OCB is actively participating in several promising clinical trials that are looking into gene therapies to treat age related macular degeneration (AMD), a condition that leads to loss of central vision due to deterioration of the macula, a portion of the eye’s retina.
Next generation treatment for Wet AMD

One of these clinical trials is looking to gene therapy to alleviate the frequency of injections of anti-VEGF medicines to treat wet-AMD. Wet AMD occurs when abnormal blood vessels grow under the retina, leaking blood and other fluids, damaging the macula. These unwanted vessels are stimulated by a factor produced by the body in response to such influences as aging, tobacco use and poor blood flow to the eye. The factor is called vascular endothelial growth factor (VEGF). Anti-VEGF therapies block VEGF and reduce the growth of abnormal blood vessels, slowing vision loss and sometimes improving vision. They have become the standard of care for the management of wet AMD.

“Right now, we know that the anti-VEGF agents that are available are outstanding, but to achieve the best outcomes in patients, they require frequent injections and frequent monitoring, which is very time consuming”, said Jeffrey Heier, MD, who is the lead investigator on the trial. “Gene therapy has the potential to deliver the same outstanding outcomes, but with much less of a burden to the patient.”

Gene therapy works by using genes inside your body’s cells for a specific therapeutic purpose. In this case, the purpose is to produce an anti-VEGF compound. The study is investigating a subretinal delivery of the RGX-314 gene. Once injected, this gene prompts the patients’ cells to produce their own anti-VEGF protein that reduces and controls the growth of blood vessels. Ideally, there would be only a single injection of the gene. The Phase I clinical trial, which began in February 2018, is looking at several potential doses. Early results show that patients who received the highest doses of the gene required fewer follow up injections and some did not require any further injections. A Phase II trial is in the planning stages.

Hope for Geographic Atrophy

Two additional studies at OCB are investigating gene therapy to treat an advanced form of dry AMD called geographic atrophy that results in progressive and irreversible loss of retina tissue. There is currently no treatment available for this condition.

“Geographic atrophy is a huge problem that can be every bit as devastating as wet AMD and affects as many people as wet AMD,” Dr. Heier said. “We are involved in several studies that are looking at gene therapies that inhibit a pathway of inflammation that occurs with AMD, called the complement system. Earlier studies have suggested that controlling this pathway can protect retinal cells and slow the progression of geographic atrophy.”

Several different approaches are being evaluated. One such approach, developed by Hemera BioSciences, involves gene therapy, and OCB is the sole clinical site for this trial. This study is fully enrolled with initial results due to be released this year. Plans for a larger phase II trial are under design.

“Our involvement with research at OCB is a real advantage to our patients; such studies often allow them the opportunity to receive cutting-edge therapy well before it becomes available to the public,” said Dr. Heier.

For more information about clinical trials at OCB, visit www.eyeboston.com/research.
EyeCare America Provides Eye Exams to Seniors

Early in his career, OCB Co-Founder B. Thomas Hutchison, MD understood the need for providing access to eye care for all. In 1985, he established and became the founding chairman of EyeCare America, a public service program run by the American Academy of Ophthalmology that provides eye care to medically underserved seniors and others who are at increased risk for eye disease and do not have health insurance.

Through EyeCare America, eligible patients can receive eye exams and sight-saving care, such as cataract surgery, at no out of pocket cost. Since its inception, the program has helped nearly 2 million people in the U.S. In 2017 alone, more than 8,000 patients were seen by 5,500 volunteer ophthalmologists.

“Dr. Hutchinson saw the gap in affordable care for older patients and recognized that because of it, patients who truly needed medical eye exams were not receiving them,” said OCB Ophthalmologist Laura Fine, MD, who has been a long-time EyeCare America volunteer.

Dr. Fine points out that with certain conditions, such as diabetic retinopathy, glaucoma and macular degeneration, vision loss cannot be restored but it can be prevented if treated before the loss occurs, which is what makes regular medical eye exams and early detection so critical to saving one’s vision.

“Most of us take our vision for granted until there is loss of vision. It is very important not to wait to schedule a medical eye exam, especially for those who are at risk for these conditions,” said Dr. Fine.

Who is Eligible?

Spread the word to your loved ones. EyeCare America offers the following two programs:

The Seniors Program connects eligible seniors 65 and older with local volunteer ophthalmologists who provide a medical eye exam often at no out-of-pocket cost, and up to one year of follow-up care for any condition diagnosed during the initial exam.

The Glaucoma Program provides a glaucoma eye exam at no cost to those who are eligible and uninsured.

The AAO has established the B. Thomas Hutchinson, MD Fund in support of EyeCare America. To make a gift, please visit aao.org/foundation/donate.