Though Ebola virus disease proved a devastating killer in West Africa in the summer of 2014, there were many who survived the epidemic. While those lucky few are surely grateful for their good outcomes, surviving the disease has been only the first hurdle to recovery. Among the less-discussed impacts of defeating Ebola: a host of lingering health effects, including long-term vision problems.

“People who have had Ebola are losing vision, but we don’t know why,” says Allen Eghrari, M.D., a cornea specialist at the Wilmer Eye Institute. Eghrari is leading a field study in West Africa to catalog and characterize the eye complications of Ebola.

What is known at this point is that the Ebola virus can linger in the eyes of survivors for months after the disease has passed. One-half or more of these survivors will experience a range of vision complications, from simple blurriness to total blindness.

<Christopher Brady, left, and Allen Eghrari have teamed up to better understand the eye complications of Ebola.>
We plan to listen to survivor complaints and study their eyes to truly understand the impacts. This would be valuable for future outbreaks and for other survivors,” he says.

Eghrari and Wilmer colleague Christopher Brady, M.D., a retina specialist, had begun to study the problem even as the virus was still raging in the fall of 2014. That is when Sheila West, Ph.D., Pharm.D., vice chair for research at Wilmer, suggested Brady and Eghrari talk to Rachel Bishop, M.D., an ophthalmologist at the National Institutes of Health.

It turned out that Bishop was on a similar track. That simple recommendation led to a fruitful collaboration. “We knew right away that combining efforts would give us the best opportunity to understand the disease and help the greatest number of patients,” Eghrari says.

Their research is now a part of a wider study into the long-term impacts of Ebola, known as PREVAIL—Partnership for Research on Ebola Vaccines in Liberia. PREVAIL is a three-part study sponsored by the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health. Eghrari, Bishop and Brady are working in the third phase, which is looking at the broader spectrum of Ebola aftereffects.

“Our part of the PREVAIL study is to look at what parts of the brain and body—particularly the eye—may be involved in post-Ebola syndrome,” says Eghrari.

“One of the most complex challenges in epidemiology is how to define a case,” Brady explains. “Even if someone is a survivor, it can be hard to prove that Ebola is the cause of his or her eye problem.”

A physical problem, like loss of vision, he says, might be a direct effect of the virus or an immune response to the infection, or it might be totally unrelated.

The team has traveled several times to West Africa and, in collaboration with John F. Kennedy Medical Center in Monrovia, begun to work hand in hand with Liberian ophthalmologists to train clinicians on the ground to use new examination equipment. They are also training the country’s first ophthalmic photographer to catalog the effects of the disease.

“From a medical science perspective, this mission is a great way to make a difference—to work at the cutting edge of public health while bolstering eye care in an underserved region,” Brady says.
THE PREVAIL III PARTNERSHIP AT A GLANCE

• PREVAIL III will take place at various sites in Liberia and is expected to enroll approximately 7,500 people, including 1,500 people of any age who survived Ebola virus disease and 6,000 of their close contacts.

• The research team will follow the Ebola survivors and their close contacts for up to five years, with study visits occurring every six months. At each follow-up visit, participants will undergo a physical exam and additional blood draws to monitor and characterize any changes in Ebola antibody levels and to detect the presence of select medical conditions.

• Using data collected at these site visits, the researchers will calculate the incidence, prevalence and risk factors for various health issues experienced by survivors, such as vision problems, immune system changes, mental disorders, joint pain, diabetes, hypertension and pregnancy complications.

• Close contacts will be used as a control group to assess whether the risks of these conditions are the same or different from those who have not had Ebola virus disease.

SOURCE: National Institutes of Health

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CHRISTOPHER BRADY, M.D.