

Preventing Brain Injury from Cerebral Malaria in African Children



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Six months of every year, Dr. Gretchen Birbeck lives in Africa fighting to help the 80-90 percent of people there with epilepsy and other debilitating neurological disorders who are not receiving proper treatment. Issues such as poor prenatal care, scarce vaccinations, meningitis, and even lack of helmet laws or safe transportation all contribute to their extremely high rates of neurological damage.

To combat the problem, Birbeck is studying how the current health system could intervene to prevent neurological damage that occurs due to conditions like cerebral malaria—malaria that attacks the brain—and affects more than one million children in Africa alone.

Cerebral malaria often shows no symptoms. A previously healthy child may suddenly be ill and drop into a coma in a matter of mere hours. If the child survives for 48 hours, he or she will likely live, but 30 percent of those children will have significant neurological damage. Each year, 250,000 African children survive, but end up with a brain injury that prevents them from attending school and developing normally otherwise. Many of them require so much care that their entire families have their lives changed forever.

“What’s so sad is that it doesn’t have to be this way,” says Birbeck. “We have treatments that can stop seizures and otherwise protect the brain during the challenges of malaria. However, they shut down breathing. In the U.S., we can put children on respirators, but in Africa, I can’t give these drugs to a child in adequate doses because I have no way to keep them breathing.”

Birbeck is testing known drugs and drug combinations, and working to identify low-cost neuroprotective interventions—like antipyretics to reduce fever—that may help reduce the seizures, and the damage they cause, while also being simple to administer and inexpensive enough to be practical to use in Africa.

“I’m lucky because Rochester is the center of the universe for neurological clinical trials,” says Birbeck. “There’s an amazing group of people here who do these neurological trials extremely well. I’m feeding at the fountain of their knowledge and bringing it to bear on the ground in Africa.”

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