

Research team launches groundbreaking drug trial in Africa

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Determined to bring relief to seizure victims, a Michigan State University research team this month begins a groundbreaking clinical drug trial that could help prevent a quarter-million African children from developing epilepsy each year.

It will be the first test of the anti-seizure medication [levetiracetam](#), or LVT, for controlling [seizures](#) caused by [cerebral malaria](#), a severe form of the disease that affects [brain function](#) in some three million children, mostly in sub-Saharan Africa.

About one in 10 children who survive cerebral malaria are left with [epileptic seizures](#), said the trial's lead researcher Gretchen Birbeck, a professor of neurology and ophthalmology in the College of Osteopathic Medicine.

"This trial is aimed at improving seizure control with the hope of finding a path toward epilepsy prevention," Birbeck said. "Since oral LVT is relatively affordable for short-term use and feasibly could be delivered in resource-limited settings, this therapy could potentially be scaled up for broad use throughout malaria endemic [African countries](#)."

The trial will include about 40 children in Malawi. If all safety standards are met, dosage will be increased until 75 percent of the children are free of seizures for 24 hours.

A wireless EEG monitoring device the size of a deck of cards will tell

the researchers if LVT is keeping the children seizure-free. Developed by New York-based biotechnology firm BioSignal Group, the device can be worn on the child's arm and transfers data in real-time to a computer, where it quickly can be analyzed and shared with colleagues.

"Unfortunately, many [children](#) with cerebral malaria continue to have seizures with no clinical evidence that seizures are occurring, but their brains still are being affected," said Birbeck, who also is director of MSU's International Neurologic and Psychiatric Epidemiology Program. "To evaluate the effectiveness of LVT, we need continuous [EEG](#) monitoring, which is very tough to do even in the best environment."

If the study finds a safe and effective dosage of LVT for cerebral malaria seizures, the team will scale it up and put the drug to the test in a randomized trial without the specialized technology.

The trial, part of MSU's Blantyre Malaria Project at Queen Elizabeth Central Hospital, is being funded with a nearly \$2 million grant from the National Institutes of Health's National Institute of Neurological Disorders and Stroke.

It's part of a broader effort by Birbeck to, as she says, "bring epilepsy out of the shadows." The disease keeps many of its victims from holding a job or going to school, and the stigma associated with seizures prevent many of them from getting the treatment they need.

Birbeck is working in Malawi and Zambia to educate people about the disease so they aren't afraid to seek treatment. With her help, more and more patients are getting help and living productive lives.

Her ultimate goal is to find a way to keep people from getting epilepsy in the first place.

"The best legacy would be when they didn't need epilepsy treatment," she said. "That would be the nicest of all."

Provided by Michigan State University

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