

Researchers find cerebral malaria may be a major cause of brain injury in African children

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Researchers at the University of Minnesota have found that cerebral malaria is related to long-term cognitive impairment in one of four child survivors. The research is published in the current issue of the journal *Pediatrics*.

Malaria is a leading cause of death for children in sub-Saharan Africa. Cerebral malaria, which affects more than 750,000 children a year, is one of the deadliest forms of malaria. It only takes one bite from an infected mosquito to contract the disease that directly affects the brain, causing fever, vomiting, chills, and coma.

"Children with cerebral malaria recover quite dramatically if they survive the period of coma," said Chandy John, M.D., associate professor of pediatrics at the University of Minnesota and principal investigator of the study. "But before this study, no one had prospectively assessed what happened to their thinking in the years after they had the cerebral malaria episode."

John worked with Michael Boivin, Ph.D., M.P.H., an expert in neuropsychology from Michigan State University, to evaluate cognitive function in children 5-12 years old with cerebral malaria who had been admitted to the Mulago Hospital, Kampala, Uganda. The children were evaluated for cognitive function in three major areas: attention, working memory, and tactile learning. Evaluation was done at hospitalization, six

months after the initial malaria episode, and two years after the episode.

John and Boivin found that at six months, 21 percent of children with cerebral malaria had cognitive impairment compared with 6 percent of their healthy Ugandan peers. At two years, cognitive impairment was present in 26 percent of the patients, compared with 8 percent of the community children. These findings suggest that cognitive impairment may begin to manifest itself months after the initial episode. Cognitive function was most dramatically impaired in the area of attention. "The study has major public health implications," John noted. "If 26 percent of children with cerebral malaria have long-term cognitive impairment, which means more than 200,000 children a year may have significant long-term brain injury because of cerebral malaria."

John and Boivin are currently conducting a new study in Uganda to look at how the body's response to malaria infection may be leading to brain injury. "If we can determine what is causing the brain injury, we can design and test interventions to prevent the injury," John said.

Source: University of Minnesota

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