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Clinical and physiopathological features of cerebral malaria in Douala town, Cameroon

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Cerebral malaria (CM) is the most severe neurological complication of infection with *Plasmodium falciparum* and is a major cause of acute non-traumatic encephalopathy in tropical countries. Insights into the processes leading to cerebral malaria might help to clearly define the patients at risk and identify risk factors for poor prognosis and fatal outcome, for a rapid and adequate intervention. We set out to describe the spectrum of cerebral malaria in our setting, and investigate some factors which may be characteristics of this severe form of the disease, and which may help in improving or accelerating the recognition of cerebral malaria.

Clinical studies were carried out in 4 hospital institutions in Douala. Children 0 to 15 years old were targeted to be enrolled after informed consent, and controls were recruited among children coming for vaccination and counselling. Cerebral malaria was defined as impaired consciousness (Blantyre coma score ≤ 2) not attributable to any other cause in a patient with a positive malaria smear. Clinical, nutritional and laboratory indices were assessed.

CM patients were significantly younger than those with malaria anemia (MA) or uncomplicated malaria (UCM), P = 0.0107. On admission, 36% of CM patients had hyperpyrexia and all were prostrated. None of them had severe undernutrition; however, 48% had mild undernutrition as assessed by the WAZ score. In comparison, severe and moderate undernutrition was prevalent in MA patients. The in hospital fatal cases occurred only among CM patients (13% of them). As far as laboratory data are concerned, 32% and 81% of CM patients had hyperparasitaemia and hyperleucocytosis respectively. Perturbations in some parameters such as lipid profile, retinol, glucose, lactic acid, nitric oxide and albumin were also noteworthy in CM patients. Children, who died of CM, had remarkable low retinol and albumin levels, as well as a very low HDL/LDL ratio very near to the cut off value of 0.4. However their nutritional assessment reveals a normal WAZ score as categorized in nutritional terms.

This study highlights peculiarities in clinical presentation and outcome, as well as in some physiopathological parameters of CM patients. This will be helpful to a better understanding of the immunologic interactions incidental to CM. Furthermore it could be very important in the early recognition and proper management of the occurrence of this deadly form of the disease.

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