

Poster presentation

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Combination therapy antimalarial drugs mefloquine and artequin induce reactive astrocyte formation on the hippocampus of rats

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Malaria infection is caused by plasmodium species in mosquitoes; namely falciparum, vivax, ovale, and malariae. These parasites cross the blood brain barrier and infect the central nervous system as cerebral malaria. It is mostly disastrous in children and is a common cause of death in children in Africa. In the past mono-therapy drugs such as chloroquine and amodiaquine were often used for treatment of cerebral malaria. Recently combination therapy is the recommended line of treatment for cerebral malaria. Most of these new drugs have adverse effects on the nervous system. We studied the reaction of astrocytes in the hippocampus after three days administration of mefloquine and artequin to forty-two Wistar rats. Artequin consist of Mefloquine and artminsinin. Some rats were given Mefloquine alone while some were given Artequin, which is the combination therapy drug. Rats in groups A, B and C received 1.07 mg/kg, 2.14 mg/kg, and 4.28 mg/kg of mefloquine while rats in groups D, E and F received 0.86/1.07 mg/kg, 1.71/2.14 mg/kg and 3.24/4.28 mg/kg of Artequin. Sections of the hippocampus treated with these drugs and stained with Hortegas lithium carbonate histochemical method revealed that astrocytes stained black as in the sections of rats from the control group. However sections from rats treated with 2.14 mg/kg (group B) and 4.28 mg/kg (group C) of mefloquine and 1.71/2.14 mg/kg (group E) and 3.24/4.28 mg/kg (group F) of artequin showed large, numerous and some few paired astrocytes. We conclude that mefloquine and artequin induced dose dependent reactive astrocyte formation in the hippocam-

pus of rats. This may impair uptake of neurotransmitters and alter neuronal environment. The functions of hippocampus such as learning and memory may be affected. We suggest that the use of new combination therapy to treat cerebral malaria should be recommended with caution.