Chloroquine is not a risk factor for seizures in childhood cerebral malaria

Crawley, J; Kokwaro, G; Ouma, D; Watkins, W; Marsh, K
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Abstract:

Objectives:There are a number of case reports in the medical literature suggesting an association between the ingestion of chloroquine and subsequent seizure activity. Our study was designed to investigate the relationship between blood levels of chloroquine (CQ), its metabolite desethylchloroquine (DCQ), and seizures in children admitted to hospital with cerebral malaria. Methods:Serial blood levels of CQ and DCQ were measured over the first 24 h of hospital admission in children with cerebral malaria. The number and duration of all seizures was recorded, and statistical analysis subsequently performed to determine the relationship between seizure activity and blood concentrations of CQ and DCQ. Results:Chloroquine was detected in 92% (100/109) of admission blood samples. 54% (59/109) of the patients had one or more seizures after admission, while 8% (9/109) had an episode of status epilepticus. Median (interquartile range) baseline concentrations of CQ and DCQ were, respectively, 169.4 microg/ml (75.1-374.9) and 352.3 microg/ml (81.9-580.1) for those children who had seizures after admission, compared to CQ 227.5 microg/ml (79.4-430.2) and DCQ 364.0 microg/ml (131.3-709.4) for those who did not have seizures ($P > 0.5$ for all comparisons). Baseline concentrations of CQ and DCQ were not significantly associated with the occurrence of seizures lasting for 5 min or more. The nine children who had an episode of status epilepticus had significantly lower median admission levels of CQ than those without status epilepticus: 75.1 microg/l (7.4-116.5) vs. 227.5 microg/l (85.6-441.2), $P = 0.02$. Multivariate logistic regression analysis, taking into account factors likely to affect the risk of seizures in hospital, failed to change the significance of these results. Conclusion:These findings suggest that chloroquine does not play an important role in the aetiology of seizures in childhood cerebral malaria