

Steady-state anticonvulsant drug levels in epileptic patients

Abstract:

Steady state concentrations of three anticonvulsant drugs (phenobarbitone, phenytoin and carbamazepine) were measured in plasma samples from fifteen patients (eight males and seven females; ages: 13-49 years; body weights: 44-70kg), attending the outpatient Neurology Clinic at Kenyatta National Hospital. In addition, total protein and albumin levels were measured in plasma from patients taking phenytoin. Total protein levels were normal (range:6.3-7.6g/dl) in all patients except in one patient (10.7g/dl). Albumin levels were also normal (range: 3.7 - 4.1g/dl) in all patients except one (2.54g/dl). One patient on phenobarbitone and three patients on phenytoin had no detectable drug levels in their plasma. In the remainder, phenobarbitone, phenytoin and carbamazepine steady state concentrations were 8.7-21.1mg/L (N=8), 9.3-27.3mg/L (N=6) and 10-19.7mg/L (N=5), respectively. The unbound fraction of phenytoin in plasma (f_u) was normal (approximately 0.1) in six patients, but relatively high (0.2) in one patient. Most patients in the study complied with the prescribed treatment and their epilepsy was controlled. Cases where drug levels were undetectable probably arose from a lack of money to purchase all, prescribed medicines: rather than deliberate non-compliance. Routine monitoring of anticonvulsant drug levels may improve management of epileptic patients.