Continuous EEG monitoring in Kenyan children with non-traumatic coma

Abstract:

The aim of this study was to describe the EEG and clinical profile of seizures in children with non-traumatic coma, compare seizure detection by clinical observations with that by continuous EEG, and relate EEG features to outcome. This prospective observational study was conducted at the paediatric high dependency unit of Kilifi District Hospital, Kenya. Children aged 9 months to 13 years presenting with acute coma were monitored by EEG for 72 h or until they regained consciousness or died. Poor outcome was defined as death or gross motor deficits at discharge. 82 children (median age 2.8 (IQR 2.0-3.9) years) were recruited. An initial medium EEG amplitude (100-300 mV) was associated with less risk of poor outcome compared to low amplitude ($\leq$100 mV) (OR 0.2, 95% CI 0.1 to 0.7; p<0.01). 363 seizures in 28 (34%) children were observed: 240 (66%) were electrographic and 112 (31%) electroclinical. In 16 (20%) children, electrographic seizures were the only seizure types detected. The majority (63%) of electroclinical seizures had focal clinical features but appeared as generalised (79%) or focal with secondary generalisation (14%) on EEG. Occurrence of any seizure or status epilepticus during monitoring was associated with poor outcome (OR 3.2, 95% CI 1.2 to 8.7; p=0.02 and OR 4.5, 95% CI 1.3 to 15.3; p<0.01, respectively). Initial EEG background amplitude is prognostic in paediatric non-traumatic coma. Clinical observations do not detect two out of three seizures. Seizures and status epilepticus after admission are associated with poor outcome