

Scalp HFOs in various childhood epilepsies

Katsuhiro Kobayashi

Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of Child Neurology, Okayama, Japan

Fast (40 – 150 Hz) oscillations can be detected in association with epileptic discharges from the scalp EEG particularly in pediatric patients with epileptic encephalopathy, such as West syndrome (infantile spasms) and epilepsy with continuous spike-waves during slow-wave sleep (CSWS). We found that the rates of FOs during hypsarrhythmia in West syndrome are about 100 times higher than the corresponding rates in adult epilepsy patients. The observed FOs appear to correspond to epileptogenicity because of their close relationship to the severity of disorders. The very high epileptic FO rates in epileptic encephalopathies are thought to affect the process of neurodevelopment by interfering with physiological functions, taking into account that high frequencies are also important in physiological higher brain functions.