

Global Summit on **BRAIN DISORDERS AND THERAPEUTICS**

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**The clinical significance of small sharp spikes: a Retrospective study of 909 patients in Epilepsy monitoring unit****James X. Tao, Ziyi Chen***Department of Neurology, The University of Chicago, USA*

Statement of the Problem: Small sharp spikes (SSS) have been generally considered benign EEG variants. Because SSS can occur as frequently in patients without epileptic seizures as in those with epileptic seizures. Recent study demonstrated that a subset of SSS on scalp EEG are time-locked to hippocampal epileptiform discharges in patients with mesial temporal lobe epilepsy (MTLE), which strongly suggested that SSS might be an EEG marker of hippocampal epileptogenesis. The purpose of this study is to determine the incidence and clinical significance of small sharp spikes (SSS) in the patient population of the adult Epilepsy Monitoring Unit (EMU). Methodology: This is a retrospective study of EEG data and medical records from consecutive patients who underwent video-EEG recording in the adult EMU from March 2013 to February 2019. SSS, interictal epileptiform discharges (IEDs), and ictal patterns were identified. Findings: Of the 909 patients reviewed, SSS were observed in 110 (12.1%) patients. Epilepsy was present in 101 of the 110 (91.8%) patients with SSS and in 441 of the 799 (55.2%) patients without SSS. The incidence of epilepsy was significantly higher in patients with SSS than in those without SSS (OR=9.1, 95% CI: 4.5-18.3, P<0.01). The sensitivity of SSS for epilepsy was 18.6% and the specificity was 97.5%. The incidence of SSS was strongly correlated with the frequency of IEDs (OR 1.89; 95%CI: 1.60-2.24, P<0.01). When both present, SSS and IEDs were co-lateralized in the same hemisphere. Conclusion and Significance: There is a statistically significant association between SSS and focal epilepsy. SSS have similar clinical implications to IEDs in the lateralization and localization of temporal lobe seizures. SSS can be an epileptiform EEG pattern for temporal lobe.

**Biography**

James Tao, MD, PhD is the director of adult epilepsy center and the clinical neurophysiology Laboratory at the University of Chicago. Dr. Tao is specialized in the use of surgery and neurostimulation devices for treating patients with medically resistant epilepsy, with a particular interest in the minimally invasive surgery such as laser ablation. His clinical research focuses on the use of electrophysiology and different types of neuroimaging to localize the seizure focus and guide epilepsy surgery. Dr. Tao is also interested in the mechanism and prevention of sudden unexpected death in epilepsy (SUDEP), which is the leading cause of mortality in patients with chronic uncontrolled epilepsy.

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