Original article

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Intracranial electrographic analysis of preictal spiking and ictal onset in uni- and bitemporal epilepsy

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- Investigation of preictal and ictal electrographic signature obtained during extra-operative electrocorticography (eECoG) in people with drug-resistant mesial temporal lobe epilepsy (mTLE).
- The presence of preictal spikes and the characteristics of ictal onset patterns (IOPs) may help distinguish unilateral from independent bilateral mTLE.

- Preictal spiking identified by eECoG is specific to mesial temporal sclerosis (Perruca *et al*., 2014) and favours a good outcome following resection (Schuh *et al*., 2000).
- Preictal spikes are characterized by the presence of rhythmic spikes or sharp-wave discharges, lasting at least five seconds, with a repetition rate of 1-2 Hz prior to seizure onset in the same location (Spencer and Spencer, 1994; King and Spencer 1995).

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Schuh LA, Henry TR, Ross DA, Smith BJ, Elisevich K, Drury I. Ictal spiking patterns recorded from temporal depth electrodes predict good outcome after anterior temporal lobectomy. Epilepsia 2000; 41:316-319

Spencer SS, Spencer DD. Entorhinal-hippocampal interactions in medial temporal lobe epilepsy. Epilepsia 1994; 35:721-727

King D, Spencer S. Invasive electroencephalography in mesial temporal lobe epilepsy. J Clin Neurophysiol. 1995;12:32-45.

- Our study demonstrates that:
  - preictal spiking in eECoG favours unilateral mTLE;
  - in bilateral mTLE, preictal spiking is infrequent and low-frequency patterns at ictal onset predominate.
- This distinction may suggest differences in network activation between unilateral and bilateral mesial temporal lobe epileptogenicity.