Interictal epileptiform discharge

The interictal epileptic discharges (IEDs) occurring in Stereotactic electroencephalography (SEEG) recordings are in general abundant compared to ictal discharges, but difficult to interpret due to complex underlying network interactions.

Analysis of IEDs is considered a valuable addition to routine review of SEEG recordings, with the potential to increase the success rate of epilepsy surgery [1].

Seizures are infrequent events in the majority of patients, making recording of ictal EEG time-consuming and labor intensive. The mainstay of diagnosis, therefore, remains detection of interictal (ie, between seizures, from the Latin icere, to strike) epileptiform discharges. Continuous video-EEG monitoring, facilitate recording of ictal events, also greatly increases the time available to detect interictal epileptiform discharges (IEDs).

Epileptiform discharges within the first 30 min of EEG recording are predictive for the occurrence of ictal EEG patterns and for ictal interictal uncertainty on subsequent continuous EEG (cEEG), for acute convulsive seizures during the ICU stay, and for a worse functional outcome after 6 months of follow-up [2].

After surgery for intractable mesiotemporal lobe epilepsy (mTLE) seizures recur in 30-40%. One predictor for seizure recurrence is the distribution of seizure onset and interictal epileptiform discharges (IED).

Preoperative bilateral ictal foci are a negative predictor for seizure outcome. Contrarily, IED exceeding the affected temporal lobe in the ipsilateral hemisphere or even bilateral IED had favorable seizure outcome if seizure onset is strictly limited to the affected temporal lobe. Reoperation for seizure persistence constitutes a promising therapeutic option [3].

Early postoperative IEDs are more frequently seen in selective amygdalohippocampectomy (SAH). than in corticoamygdalohippocampectomy (CAH). Unlike in patients with CAH, the presence of IEDs after selective amygdalohippocampectomy (SAH) was not a predictor of seizure recurrence. The type of surgery should be considered while utilizing postoperative Interictal epileptiform discharges (IEDs) for evaluating the prognosis [4].

1)
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