With 3 Tesla, the volumetry of CA4/Dentate gyrus (DG) was associated with the pathological changes in DG in mesial temporal lobe epilepsy (MTLE) patients. The volumetry of CA4/DG with preoperative 3T MRI could predict the postoperative seizure outcomes in those patients [1].

Case series

A retrospective study comprises 26 patients (11 males/15 females, mean age 34±12years, range 13-50 years) with 3 Tesla MRI-negative focal epilepsies who underwent resective epilepsy surgery. Non-invasive and invasive presurgical diagnostic modalities, type and localization of resection, clinical and epileptological outcome with a minimum follow-up of 1year (range 1-11 years, mean 2.5±2.3years) after surgery as well as outcome predictors were evaluated.

All patients underwent invasive video-EEG monitoring after implantation of intracerebral depth and/or subdural electrodes. Ten patients received temporal and 16 extratemporal or multilobar (n=4) resections. There was no perioperative death or permanent morbidity. Overall, 12 of 26 patients (46%) were completely seizure-free (Engel IA) and 65% had a favorable outcome (Engel I-II). In particular, seizure-free ratio was 40% in the temporal and 50% in the extratemporal group. In the temporal group, long duration of epilepsy correlated with poor seizure outcome, whereas congruent unilateral FDG-PET hypometabolism correlated with a favorable outcome.

In almost two thirds of temporal and extratemporal epilepsies defined as “non-lesional” by 3 Tesla MRI criteria, a favorable postoperative seizure outcome (Engel I-II) can be achieved with accurate multimodal presurgical evaluation including intracranial EEG recordings. In the temporal group, most favorable results were obtained when FDG-PET displayed congruent unilateral hypometabolism [2].

1)
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2)
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