Stereotactic EEG guided laser ablation for neocortical epilepsy

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Rationale

- Medial temporal lobe epilepsy outcomes (with and without sEEG) are generally very good.
- Outcomes for stereotactic laser ablation (LITT) for medial temporal lobe epilepsy are also good.
- Outcomes sEEG guided stereotactic laser ablation (sEEG-SLA) of neocortical structures are less defined.

Methods

- Retrospective review 2011-16
- Inclusion:
  - all patients undergoing SLA of targets identified by sEEG (except medial temporal lobe)
- Exclusion: medial temporal lobe epilepsy by sEEG
- Preop: MRI, PET, neuropsych, video-EEG
- MRI-guided stereotactic laser ablation
  - cannula placed via new twist-drill craniostomy or preexisting sEEG bolt
- Clinical evaluations at 3, 6, 12+ m
Nocturnal hypermotor onset with rapid generalization, MRI and PET negative, scalp EEG nonlocalizing
Focal dyscognitive seizures with prior low grade glioma resection, lateral onset with medial spread

sEEG “3D grid”

Post DIR
Post T1+Gd
Post T1+Gd
Results

• **12/13 patients** with outcome >1 y
  7 male
  8 had prior epilepsy or tumor surgery
  1 patient with tuberous sclerosis and multifocal epilepsy and considered palliative*

• Depths (median 15, range 3-28), +/- strips (median 2, range 0-11)

• No complications or permanent deficits (1 transient SMA syndrome)

• Discharged post-ablation: median postop day 1

• Median follow up: 500 days

Localizations:
- 9 frontal
- 2 cingulate
- 2 insula
- 1 inferior temporal
- 1 lateral temporal
- 1 occipital

Apparent pathology:
- 3 tuberous sclerosis*
- 2 prior tumor resection
- 2 trauma
- 2 cortical dysplasia
- 3 unidentified

Epilepsy outcomes:
- 7/12 (58%) Engel 1
- 1/12 (8%) Engel 2
- 3/12 (25%) Engel 3*
- 1/12 (8%) Engel 4

67%

THANK YOU!

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