

Temporal lobe epilepsy surgery complications

Mesial [temporal lobe epilepsy surgery](#) is associated with a risk of [memory decline](#) after surgery, but the effect of the extent and locus of temporal [resection](#) on postoperative [memory](#) function are controversial. Kim et al. aimed in a study were to confirm if selective [resection](#) is effective in preserving memory function and identify critical areas for specific memory decline after temporal resection.

In this single-center retrospective study, the authors investigated data from patients who underwent unilateral [mesial temporal lobe epilepsy](#) (MTLE) surgery between 2005 and 2015. Data from 74 MTLE patients (60.8% of whom were female; mean [SD] age at surgery 32 years [8.91 years] and duration of epilepsy 16 years [9.65 years]) with histologically proven hippocampal sclerosis were included. Forty-two patients underwent left-sided surgery. The resection area was manually delineated on each patient's postoperative T1-weighted images. Mapping was performed to see if the resected group, compared with the nonresected group, had worse postoperative memory in various memory domains, including verbal items, verbal associative, and figural memory.

Overall, 95.9% had a favorable epilepsy outcome. In verbal item memory, resection of the left lateral temporal area was related to postoperative decline in immediate and delayed recall scores of word lists. In verbal associative memory, resection of the anterior part of the left hippocampus left parahippocampal area, and left lateral temporal area was related to a postoperative decline in immediate recall scores of word pairs. Resection of the posterior part of the left hippocampus, left parahippocampal area, and left lateral temporal area was related to delayed recall scores of the same task. Similarly, in the figural memory, the postoperative decline of immediate recall scores was associated with the resection of the anterior part of the right hippocampus, amygdala, parahippocampal area, and superior temporal area, and decline of delayed recall scores was related to resection of the posterior part of the right hippocampus and parahippocampal area.

Using voxel-based analysis, which accounts for the individual differences in the resection, the authors found a critical region for postoperative memory decline that is not revealed in the region-of-interest or groupwise comparison. Particularly, resection of the hippocampus was related to associative memory. In both verbal and visual memory, resection of the anterior part of the hippocampus was associated with the immediate recall, and resection of the posterior part of the hippocampus was associated with the delayed recall. Therefore, the authors' results suggest that selective resection may be effective in preserving postoperative memory decline ¹⁾.

¹⁾

Kim D, Kim JS, Jeong W, Shin MS, Chung CK. Critical area for memory decline after mesial temporal resection in epilepsy patients. J Neurosurg. 2020 Jan 3;1-9. doi: 10.3171/2019.10.JNS191932. [Epub ahead of print] PubMed PMID: 31899884.

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Last update: **2024/06/07 02:55**

