We demonstrate deteriorations in verbal memory after temporal lobe resections for treatment resistant epilepsy

INTRODUCTION

- The efficacy of resective surgery for treatment-resistant epilepsy has been well-established.
- However, evidence for neuropsychological changes remains mixed, with some studies demonstrating no change or even improvement while others exhibiting decline.
- We aimed to investigate neuropsychological changes in patients undergoing temporal lobe resections (TLR) for treatment-resistant epilepsy.

METHODS

- Thirty-four (16 male, 18 female) patients that underwent TLR for treatment-resistant epilepsy at a single university hospital between 2008 and 2014 were retrospectively identified.
- Neuropsychological data from patients tested by a single neuropsychologist were obtained.
- Scores at a mean of 6.6 months preoperative and 12.5 months postoperative were compared with a matched-pairs t-test.

RESULTS

- Seventeen patients underwent left TLR and 17 right TLR.
- Mean age at surgery was 30.6 and median seizure outcome score (International League Against Epilepsy scale) was 1.
- Verbal memory decreased postoperatively as measured by the California Verbal Learning Test long delay (8.65 ± 2.66 versus 7.31 ± 3.56, p = 0.02) and recognition (13.9 ± 2.04 versus 11.7 ± 3.57, p = 0.02).
- There was a trend towards decreased performance postoperatively in nonverbal hand motor skill (grooved pegboard test, 89.1 ± 6.4 versus 89.3 ± 6.4, p > 0.05) and object naming (Boston Naming Test, 27.2 ± 13.7 versus 25.6 ± 14.3, p = 0.09).
- There was a trend towards increased phonemic verbal fluency (FAS, 19.5 ± 9.24 versus 22.2 ± 8.22, p = 0.10).
- There were no significant changes in other neuropsychological scores, including nonverbal memory, visuospatial processing, attention, executive function, or mood (p > 0.05).

CONCLUSIONS

- Our data corroborate other studies demonstrating deteriorations in verbal-memory and object naming and improvements in verbal fluency after TLR for DRE.
- However, more research is needed to understand the mechanisms behind these changes and explore outcomes of newer neuro modulation techniques.

KEYWORDS

Epilepsy • Surgery • Temporal lobectomy • Selective amygdalohippocampectomy • Cognition • Neuropsychology
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