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Naming and recognition after laser amygdalohippocampotomy: Is the hippocampus involved?

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To the Editors

We read with great interest the recent manuscript by Drane et al. entitled, “Better object recognition and naming outcome with MRI-guided stereotactic laser amygdalohippocampotomy for temporal lobe epilepsy.”⁴ In this manuscript, the authors demonstrate a striking absence of any decline in naming or recognition for temporal lobe epilepsy (TLE) patients who underwent stereotactic laser amygdalohippocampotomy (SLAH). Specifically, when examining performance on either the Boston Naming Test (BNT) or Iowa Famous Faces Test, none of the patients who underwent SLAH (10 dominant, 9 nondominant) showed any decline in naming or recognition performance. This finding is important given that postoperative anomia is one of the most common complaints after language dominant anterior temporal lobectomy and can be extremely disabling. That said, the finding is not surprising either: a convergence of evidence from the lesion method^{3,6}, functional neuroimaging⁵, or even electrocorticography¹ demonstrate a role for the anterior temporal lobe in naming and recognition, particularly related to proper nouns. Thus, as expected and as concluded by the authors, sparing the anterior temporal neocortex with SLAH spares postoperative naming or recognition as measured by BNT and Iowa Famous Faces.

A second thought-provoking conclusion by the authors was that the hippocampus “does not appear to be an essential component of neural networks underlying name retrieval or recognition of common objects or famous faces.”⁴ The authors base this conclusion on the finding that SLAH patients show no decline in naming or recognition while patients with disruption of the anterior temporal neocortex (even by transcortical selective amygdalohippocampotomy) commonly showed decline in naming or recognition. While the findings do suggest that the hippocampus is not involved in the retrieval of names or recognition of visually-presented entities when the to-be-accessed information was already well-established knowledge, the hippocampal system is understood to be crucial for the

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Author Statement

We confirm that we have read the Journal’s position on issues involved in ethical publication and affirm that this report is consistent with consistent with those guidelines.

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acquisition of declarative knowledge (e.g., names) for later retrieval². Thus, the conclusion that the hippocampus is not an essential part of the name retrieval or recognition network seems misleading given that hippocampal ablation would undoubtedly be associated with declines in acquisition of and subsequent memory for names and visually-presented entities, and such declines can have significant impacts on functioning in work or social settings.

Secondly, it would be interesting to see how SLAH patients differ from patients who undergo open resective operations in other cognitive domains. A limitation of the Drane et al. manuscript is that only BNT and Iowa Famous Faces data are presented. Surely patients in the SLAH group might demonstrate decline by other neuropsychological measures and it would be helpful to know what those are, especially considering the exciting findings with regard to naming and recognition. One might expect an equivalent performance on some measures of memory and this would be interesting and important to present.

The naming and recognition outcomes reported by Drane et al. are both important and encouraging. Further work, particularly with regard to seizure freedom outcomes, will undoubtedly shed light on the role SLAH will play in the future of epilepsy surgery for patients with TLE.

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