



REVISTA MÉDICA DEL
HOSPITAL GENERAL
DE MÉXICO

www.elsevier.es/hgmx



CLINICAL CASE

Category-specific naming impairment in temporal lobe epilepsy through cortical electrical stimulation: Case report

Q2 D.A. Manjarrez-Garduño^{a,b}, D. Trejo-Martínez^{a,b}, A.J. Nuche-Bricaire^a, F. Velasco^b,
G. Aguado-Carrillo^b, D. Vázquez-Barrón^b, M. Montes de Oca-Basurto^a,
P.E. Saucedo-Alvarado^b, H. Becerril-Montes^b, A.L. Velasco^{b,*}

^a *Epilepsy Clinic and Unit of Functional Neurosurgery, Stereotaxic and Radiosurgery of the General Hospital of Mexico, Mexico City, Mexico*

^b *Faculty of Psychology, UNAM, Mexico City, Mexico*

Received 26 February 2017; accepted 8 May 2017

KEYWORDS

Naming;
Cortical electrical stimulation mapping;
Language;
Temporal lobe epilepsy

Abstract Current studies based on specific naming subcategories are scarce and specially if they are combined with cortical electrical stimulation mapping (CES). Most researchers use generic categories of objects that have not shown to be useful for epileptic patients. The present study explores the ability to retrieve words with the aim of naming entities through CES during surgery of a patient with left temporal lobe epilepsy (TLE) prior to anterior temporal lobectomy (ATL). During the CES we observed alterations in the naming of faces, living things (LTh) and parts of the body, with conservation of non-living things (NLTh). CES allowed the identification and prediction of regions at risk of being resected. This result shows that the naming deficits are selective and can be used as indicators and predictors of post-operative cognitive dysfunction in TLE since the regions involved in this function are associated with the pole and inferior and medial temporal gyrus.

© 2017 Sociedad Médica del Hospital General de México. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

* Corresponding author at: Dr. Balmis 148, Cuauhtémoc, Doctores, 06726 Mexico City, Mexico. Tel.: +52 59996133x1332.
E-mail address: analuisav@yahoo.com (A.L. Velasco).

<http://dx.doi.org/10.1016/j.hgmx.2017.05.002>

0185-1063/© 2017 Sociedad Médica del Hospital General de México. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

PALABRAS CLAVE

Denominación;
Estimulación
eléctrica cortical
directa;
Lenguaje;
Epilepsia del lóbulo
temporal

Alteraciones en la denominación de categorías específicas en epilepsia del lóbulo temporal mediante estimulación eléctrica cortical: estudio de caso

Resumen Actualmente los estudios de subcategorías en la denominación son escasos y más cuando se combinan con estimulación eléctrica cortical directa (EEC). La mayoría usa objetos que no han mostrado ser específicos en epilepsia del lóbulo temporal (ELT). El presente estudio explora la recuperación de las palabras con el objetivo de nombrar entidades (denominación) a través de la EEC durante la cirugía de una paciente con ELT-izquierdo previo a la lobectomía temporal anterior (LTA) Durante la estimulación se observaron alteraciones en la denominación de rostros, seres vivos (SV) animados y partes del cuerpo, con conservación de los seres no vivos (SNV). La EEC permitió identificar y predecir las regiones con riesgo de ser ressecadas. Este resultado muestra que las alteraciones en la denominación son selectivas por lo que pueden emplearse como predictores de disfunción cognitiva postquirúrgica, ya que esta función depende de polo y giro temporal inferior y medial.

© 2017 Sociedad Médica del Hospital General de México. Publicado por Masson Doyma México S.A. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

TLE occupies 70% of all focal epilepsies and is the most common type of epilepsy in adults and children. Clinical and epidemiological studies have shown that approximately one-third of patients with epilepsy develop epilepsy refractory to pharmacological treatment, despite good administration of prescribed drugs.¹

ATL has been described as the most appropriate therapeutic option for to treat refractory TLE, since it is shown to produce a rate of improvement in children and adults between 67.9% and 85%; this rate is superior to any medical treatment.² The surgical procedure consists of the resection of the anterior temporal pole, anterior part of the parahippocampus, the inferior temporal gyrus and portions of mesial structures such as the amygdala and the hippocampus.³

It has been shown that 81% of patients achieve a favorable outcome for surgery (Class I on the Engel scale) after 6 months of the procedure. The maintenance of the result has been reported in 78% at one year of surgery, 76% at two years, 74% at five years, and 72% at ten years after surgery.⁴ However, one of the main side effects to surgical treatment is the risk of cognitive alterations, significantly affecting the functionality and quality of life of the patient.^{5,6} Within these alterations are the loss of episodic memory, language deficits and quadrantanopsis.⁷ As for the language alterations, it is reported that between 25 and 60% of the patients with left hemispheric dominance submitted to ATL, present a deficit; the difficulties in naming are the highest occurrence ones.⁸

Naming is defined as the ability to name a conceptual entity through the retrieval of its lexical label (the word that allows naming it). Naming a concept implies access to the lexicon (mental dictionary) and extracting all the information about the words: its written form (spelling), its auditory form (phonology), its meaning (semantic), its morphological structure and its syntactic and semantic category.⁹ The neuronal substrate of word retrieval does not depend on the classical regions of language (Broca and Wernicke area).

Imaging and lesion studies indicate that there are multiple and diverse areas that underlie normal language processing. It is possible to differentiate two systems that work independently. The first one dedicated to the recovery of the lexical label (naming) and the second dedicated to the recovery of conceptual knowledge of objects (recognition).¹⁰ It has been described that there is a clear differentiation between brain areas dedicated to word retrieval processing according to the type of category to which the object to be named belong (LT and NLT). Patients with unilateral lesions of the left hemisphere show greater difficulties in the naming of objects. More specifically, when lesions are located in the anterior temporal lobe there are greater deficits in the naming of faces and animals. While lesions in left temporoparietooccipital junction condition the appearance of deficits in the recognition and naming of man-made objects such as tools, vehicles and buildings.¹¹

During the surgical procedure of patients with drug-resistant epilepsy these areas are resected, which is why the disorders of the denomination are the most common adverse effects of ATL. Therefore, one of the objectives of neuropsychological assessment in epilepsy surgery is to preserve this language function after surgery.

Functional mapping through EEC is one of the methods aimed at identifying areas associated with language function that may be at risk of being resected in the surgical procedure. The tasks of naming visual confrontation are the most used in the identification of these areas since when stimulated they produce alterations in the naming, indicating cognitively functional regions that must be preserved during the surgical intervention.

We consider that the reports to date underestimate the prevalence of alterations in the denomination due to the failure to use the appropriate tests for valuation. Current studies suggest the presence of selective deficit in the designation of stimuli belonging to different semantic categories. However, to date there is no clarity regarding the categories affected in patients with TLE before and after surgery. This is due to the lack of methods that allow to explore

Download English Version:

<https://daneshyari.com/en/article/11018206>

Download Persian Version:

<https://daneshyari.com/article/11018206>

[Daneshyari.com](https://daneshyari.com)