

Uncinate fasciculus in temporal lobe epilepsy

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Abstract

Background and purpose:Temporal lobe epilepsy is the most common focal intractable epilepsy. Uncinate fasciculus is a white fiber bundle that connects the orbitofrontal cortex with the anterior temporal lobe and is implicated in most of the superior mental functions. There is evidence of uncinate fasciculus as a propagation pathway of seizures from temporal lobe. The aim of the study is to determine uncinate fasciculus alterations in patients with temporal lobe epilepsy, through fractional anisotropy.

Methods:Thirty-three patients with temporal lobe epilepsy (10 right and 23 left) were studied. All of them were right-handed and had left hemisphere dominance for language. A 1.5 T MR imaging scanner was used to obtain diffusion tensor imaging (DTI). Fractional anisotropy of uncinate fasciculus was calculated through TBSS (Tract Based Spatial Statistics). Statistical analysis was done using IBM SPSS (v. 25).

Results:Fractional anisotropy was higher in right uncinate fasciculus, regardless of epilepsy side. Right uncinate fasciculus, at the insula level, showed lower fractional anisotropy in patients with right temporal lobe epilepsy.

Conclusions:Results support the evidence of uncinate fasciculus as a pathway of propagation in temporal lobe epilepsy, specially at insular level.

Key words:Diffusion tensor imaging, temporal lobe epilepsy, uncinate fasciculus

Biography:

Lourdes SimbrónRibbeck has graduated as radiologist from Universidad Nacional Mayor de San Marcos in Lima-Perú and is currently completing a neuroradiology fellowship in Universidad Nacional Autónoma de México. Her main interests are epilepsy and CNS tumors.

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