Neurocirugia. 2017;28(Espec Congr):106

Neurocirugía

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C0233 - MAPPING THE MIRROR NEURON SYSTEM IN BRAIN TUMOR PATIENTS USING RESTING-STATE FMRI APPROACHES

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Resumen

Objectives: The mirror neuron system (MNS) is a fronto-parietal network involved in action understanding and imitation. The impairment of this system has been associated with motor and social cognition dysfunction. Identifying this network with standard functional neuroimaging procedures may be troublesome. The aim of the present work is To identify preoperatively the MNS in patients with brain tumor using resting-state functional magnetic resonance imaging (r-fMRI).

Methods: Six patients were included in the study (4 gliomas, 1 metastasis and 1 meningioma). A preoperative r-fMRI was performed in all of them. During this procedure, patients do not have to perform any task; r-fMRI is based on the identification of the spontaneous fluctuations that correspond with neural activity. This technique leads to the identification of different functional networks. Functional data were analyzed using an independent component analysis (ICA) approach.

Results: The MNS was identified in all patients. The network was distributed bilaterally with some differences in the extension of the activity among patients. Furthermore, a distortion of the network secondary to brain edema was also identified in some patients. ICA approach showed also other important functional networks: primary and secondary motor areas, somato-sensory and language networks, among others.

Conclusions: The MNS can be identified preoperatively in patients with a brain tumor using r-fMRI approaches. This opens the door to preoperatively map this network and to correlate the clinical situation of the patient with the state of the MNS.

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