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THESE

Investigation of MRI texture analysis as an aid tool for characterization of refractory epilepsies

Investigação do uso da análise de textura de imagens de ressonância magnética como ferramenta de auxílio na caracterização das epilepsias refratárias

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ABSTRACT

In refractory epilepsies, therapies that use two or more antiepileptic drugs do not result in the control of the crises. The patients can present diffuse or focal cortical dysplasia (FCDs) and/or hippocampus atrophic changes that, in some cases, are not detectable by a simple visual analysis of the magnetic resonace (MR) images. In this context, the objective of this study was to assess the MR images texture in regions of interest (ROIs) placed in the hippocampi, limbic association cortex and prefrontal cortex of 20 patients with refractory epilepsy, and compare them with the same areas of a group of 20 healthy individuals. The MR images of these patients were normal, that is, they did not present visually detectable changes. The approach used for estimating the texture parameters was the gray level coocurrence matrix. Out of the 11 texture parameters calculated, seven indicated the existence of statistically significant differences among patients and controls. These findings suggest that the technique of texture analysis can contribute for the study of refractory epilepsies, and has potential to serve as an aid in the diagnosis of these syndromes.

Keywords: refractory epilepsies, magnetic resonance, texture analysis.