A magnetization transfer imaging study in patients with temporal lobe epilepsy and interictal psychosis

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BACKGROUND
Findings from previous neuropathological and neuroimaging studies in patients with epilepsy and interictal psychosis have been inconclusive, and both focal and widespread brain abnormalities have been reported. Thus, further investigation with advanced in vivo magnetic resonance imaging (MRI) techniques, such as magnetization transfer imaging, capable of detecting more subtle brain abnormalities, is warranted.

METHODS
Twenty patients with temporal lobe epilepsy and interictal psychosis were compared with 20 nonpsychotic patients. Patients were matched with respect to conventional MRI findings. Each group comprised of 10 patients with hippocampal sclerosis (6 left, 4 right) and 10 patients without focal lesions on MRI. A voxel-based analysis was used for the group comparisons.

RESULTS
Voxel-based analysis revealed significant reductions of magnetization transfer ratio (an index of signal loss derived from magnetization transfer imaging) in the left superior and middle temporal gyri in the psychotic patients for the subgroup of patients with no focal lesions on MRI. There were no significant volumetric differences between the psychotic and nonpsychotic patients.

CONCLUSIONS
Focal cortical magnetization transfer ratio abnormalities in the left temporal lobe unrelated to volume changes can be demonstrated in some temporal lobe epilepsy patients with interictal psychosis. Our findings might reflect subtle neuropathological abnormalities that are undetected by conventional MRI.

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