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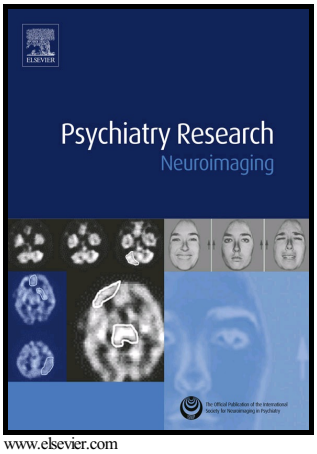

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Diffusion Characteristics of the Fornix in Patients with Alzheimer's Disease

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Abstract

White matter degradation is a major part of the pathogenesis of Alzheimer's disease (AD). The fornix is the predominant outflow tract from the hippocampus, and alterations to its microstructure in patients with AD are still being explored. Diffusion tensor imaging (DTI) is an in vivo neuroimaging technique that can provide unique information about alterations in tissue microstructure, which can indicate underlying neurobiological process at the microstructural level. In this prospective study, DTI was used to assess and analyze the microstructural features of the fornix in subjects with AD (n = 17), mild cognitive impairment (MCI; n = 12) and healthy controls (n = 17). DTI was performed using Explore DTI software and the FSL package. Within the fornix, patients with AD showed decreased fractional anisotropy values and length of reconstructed streamlines of fornix relative to healthy controls, but higher mean diffusivity values. MCI subjects showed a trend towards elevated mean diffusivity