T2 SIGNAL OF THE HIPPOCAMPUS AND TEMPORAL LOBE WHITE MATTER IN THE DIFFERENTIAL DIAGNOSIS OF ALZHEIMER'S DISEASE AND LEWY BODY DISEASE

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We investigated fixed human hippocampal specimens using the strongest field available for high resolution magnetic resonance imaging (MRI) existing in the world. This technology has the capability to evaluate imaging biomarkers at the microscopic level. T2 and T2*- weighted images were acquired at 21.1 T (900 MHz) for age-matched normal healthy controls (n=9), Lewy body disease (LBD, n=11) and Alzheimer's disease cases (AD, n=3). T2* values showed no differences among the groups in either temporal lobe white matter or the hippocampus proper. T2 values were increased in both the temporal lobe white matter and hippocampus proper of the AD compared to both normals and LBD cases (p<0.05). T2 ROI analysis of temporal lobe white matter and hippocampal structures may provide a definable ante-mortem measure useful for the differential diagnosis of LBD and AD. Quantitative evaluation of the pathology underlying the signal change is currently underway, which may increase experimental significance and biological correlates.