
Structural alterations in posttraumatic patients: Correlation to associative memory deficits

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Abstract

Memory deficits are a common complaint reported by posttraumatic stress disorder (PTSD) patients. Despite their vivid trauma-related memory, studies in PTSD patients confirmed memory impairment for non-trauma related stimuli when compared to controls; specifically in associative memory. Magnetic resonance imaging (MRI) studies in PTSD patients have demonstrated specific volume and fractional anisotropy (FA) reductions in various brain regions. The aim of this study was to explore to what extent anatomical changes in PTSD patients are associated with memory deficits. Specifically we focused on brain regions often related to intact inter-hemispheric communication, required for binding items to create associations, e.g., the corpus callosum (CC). We carried out an item-association (words and pictures) memory test in PTSD and matched controls (N=12 per group). In parallel, we performed anatomical and diffusion tensor imaging MRI scans. We report that associative memory deficits are correlated with decreased volume of the posterior, mid-posterior and anterior portions of the CC in PTSD patients. These preliminary results highlight structural and functional changes in connectivity as a potential mechanism underlying associative memory deficits in PTSD.

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