Abstract

This is a comparative study between manual volumetry (MV) and voxel based morphometry (VBM) as methods of evaluating the volume of brain structures in magnetic resonance images. The volumes of the hippocampus and the amygdala of 16 panic disorder patients and 16 healthy controls measured through MV were correlated with the volumes of gray matter estimated by optimized modulated VBM. The chosen structures are composed almost exclusively of gray matter. Using a 4 mm Gaussian filter, statistically significant clusters were found bilaterally in the hippocampus and in the right amygdala in the statistical parametric map correlating with the respective manual volume. With the conventional 12 mm filter, a significant correlation was found only for the right hippocampus. Therefore, narrow filters increase the sensitivity of the correlation procedure, especially when small brain structures are analyzed. The two techniques seem to consistently measure structural volume.

Keywords

magnetic resonance imaging, manual volumetry, voxel based morphometry.