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Study of the hippocampus and the anterior cingulate gyrus by proton MR spectroscopy in patients with post-traumatic stress disorder.

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Abstract

OBJECTIVE: To explore the characteristics of metabolic changes in patients with post-traumatic stress disorder through ¹H-MRS in neuroanatomical circuit comparing with age-matches controls.

METHODS: Fifty patients with post-traumatic stress disorder and 50 gender-and age-matched normal controls were involved. The neurochemical abnormalities including the levels of choline (Cho)/creatinine(Cr) and N-acetylaspartate (NAA)/Cr were measured respectively in hippocampus and the anterior cingulate gyrus with three-dimension ¹H-proton spectroscopy(3D ¹H-MRS).

RESULTS: The values of NAA/Cr ratios in hippocampus and the anterior cingulate gyrus were significant lower in patients with post-traumatic stress disorder(1.71±0.32, left 1.58±0.29, right 1.55±0.31) than that in controls(2.24±0.41, left 1.98±0.27, right 2.02±0.36)(P<0.05), but the values of Cho/Cr in hippocampus(left 1.64±0.23, right 1.66±0.34) were no significant with that of controls (left 1.48±0.29, right 1.54±0.38). Values of Cho/Cr in cingulate gyrus were significant higher in post-traumatic stress disorder patients (1.88±0.44) than that in controls (1.37.±0.32) (P<0.05).

CONCLUSIONS: The results indicate some special neurochemical and histological structure changes in post-traumatic stress disorder patients, which might occur earlier in anterior cingulate gyrus than in hippocampus.

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