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A study of brain metabolism in fibromyalgia by positron emission tomography.

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Abstract

PURPOSE:

The aim of the present study was to determine the brain regions with altered metabolism in patients with treatment-naïve fibromyalgia (FM).

METHODS:

We used [¹⁸F] fluoro-d-glucose positron emission tomography to examine a total of 18 treatment-naïve FM patients and 18 age- and sex-matched healthy controls not suffering from pain. A voxel-by-voxel group analysis was performed using statistical parametric mapping.

RESULTS:

No significant voxel (peak)-level results were detected in this study; however, some regions were detected as significant-size clusters. There were no significant differences in brain metabolism between FM patients and controls. However, the right thalamus and left lentiform nucleus were hypermetabolic areas in FM patients with poor prognosis compared to the healthy controls. In contrast, the left insula and left lentiform nucleus were hypometabolic areas in FM patients with good prognosis compared to the healthy controls. Compared to FM patients with good prognosis, FM patients with poor prognosis showed significant hypermetabolism in the left thalamus, bilateral lentiform nucleus, and right parahippocampal gyrus.

CONCLUSION:

The present findings suggest an association between the metabolism in the thalamus, lentiform nucleus, and parahippocampal gyrus and prognosis in FM patients. Further study with a larger number of patients is required to confirm this association.

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KEYWORDS:

Brain metabolism; Fibromyalgia; Pain; Positron emission tomography; Prognosis