

Evaluation of Responsible Area for Musical Hallucination in Schizophrenia; Positron Emission Tomography Study

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Abstract

Auditory hallucination is a cardinal feature of schizophrenia. The aim of this study was to clarify the responsible area for musical hallucination in schizophrenia, using three-dimensional mapping of regional cerebral blood flow (rCBF) measured by positron emission tomography (PET). The author examined 4 patients with chronic schizophrenia and frequent musical hallucination without other positive symptoms, and 13 healthy volunteers. Regional CBF in each patient was compared with that in healthy volunteers using statistical parametric mapping (SPM). In all patients, during stimulation by white noise rCBF significantly increased in part of the temporal lobe compared with healthy volunteers. During stimulation from the recital of a Japanese nursery rhyme, rCBF in patients significantly increased not only in the temporal lobe but also in the frontal lobe or occipital lobe. These areas exhibiting significant increase in rCBF spread more during stimulation by the same music as the musical hallucination. The present study demonstrated that musical hallucination in schizophrenia is associated with hyperactivity in the temporal lobe.