

Jealous Delusions and Dysfunction of the Right Parietal Lobe in Early-Onset Alzheimer's Disease

To the Editor: In 1907, Dr. Alzheimer reported the first case of a disease (AD) in which a woman showed delusion of jealousy and developed memory deficits and progressive loss of cognitive abilities. Although the prevalence of delusional jealousy in AD was reported as 16%,¹ the neurological pathophysiology of this phenomenon remains unclear. Herein, we report a case in which an early-onset AD patient showed delusional jealousy and atypical asymmetric regional cerebral blood flow (rCBF) reductions in the parietal lobes.

Case Report

The patient was 57-year-old, right-handed woman. She had graduated from junior high school and married at the age of 25. Her husband was a carpenter and had a bad temper. When he drank alcohol, he often used abusive language. In

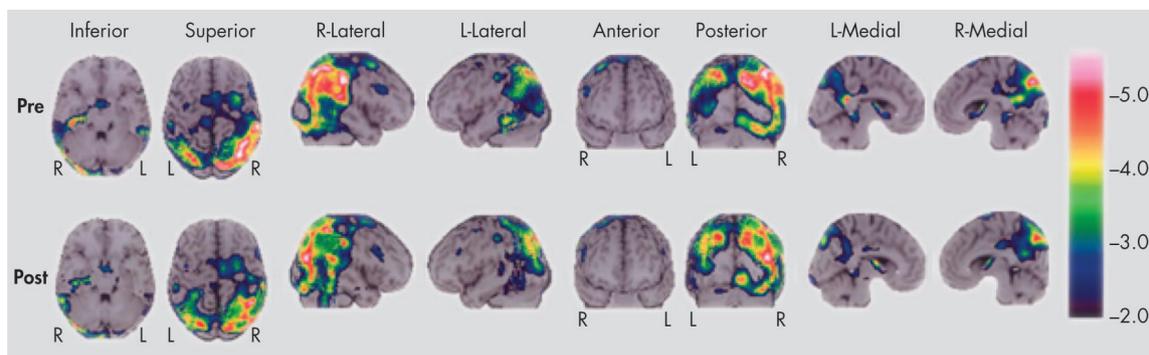
2004, her daughter married and began to live with her husband. After that, the patient made mistakes with her housework, and her family noticed her mild memory disturbance. In 2006, she had difficulties in dressing herself. In March 2007, her husband caused a traffic accident because of his drunk driving, and he had to borrow a lot of money to compensate for damages. After that, she showed delusional jealousy and accused her husband of infidelity although he had never had an affair. In September 2007, she was referred to our hospital because of the delusional jealousy. At the first medical examination, she was alert, and physical and neurological examinations revealed no abnormalities. There were no psychiatric histories, consciousness disturbances, or medical conditions known to cause delusional jealousy. MMSE scores were 9/23 (Time, -4; Place, -3; Serial 7, -4; Recall, -3; she refused to do repetition, three-step order, command, sentence, and copy design). CT showed very mild brain atrophy, and SPECT showed decreased rCBF in the right temporoparietal lobes and posterior cingulate

cortex (Figure 1). The medical histories and results of their examinations met the National Institute Of Neurological And Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association (NINCDS-ADRDA) criteria for probable early-onset AD. After treatment (donepezil 5 mg/day), the delusional jealousy improved. The following SPECT showed that the range of decreased rCBF was reduced, and the degree of decreased rCBF in the right parietal lobe improved.

Discussion

In this case, an early-onset AD patient showed delusional jealousy after her husband caused a traffic accident. After donepezil was administered, the delusional jealousy and rCBF in the right parietal lobe improved. Therefore, the dysfunction of the right parietal lobe in an early-onset AD patient might cause the delusional jealousy when the trigger, such as a spouse's mistake, occurs. Previous studies have demonstrated that right-hemisphere brain damage was associated with delusional jealousy.²⁻⁴ It

FIGURE 1. Series of SPECT Images of a 57-Year-Old Woman With Early-Onset Alzheimer's Disease and Delusional Jealousy



LETTERS

has been suggested that different types of delusions in AD are associated with discrete neurological pathophysiologies. For example, we reported that schizophrenia-like psychoses were associated with the right temporoparietal lobe.⁵ Dysfunction of the right hemisphere, especially the right parietal lobe, might be associated with delusional jealousy in early-onset AD patients.

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References

1. Tsai SJ, Hwang JP, Yang CH, et al: Delusional jealousy in dementia. *J Clin Psychiatry* 1997; 58:492–494
2. Soyka M: Delusional jealousy and localized cerebral pathology. *J Neuropsychiatry Clin Neurosci* 1998; 10:472
3. Narumoto J, Nakamura K, Kitabayashi Y, et al: Othello Syndrome secondary to right orbitofrontal lobe excision. *J Neuropsychiatry Clin Neurosci* 2006; 18:560–561
4. Luaute JP, Saladini O, Luaute J: Neuroimaging correlates of chronic delusional jealousy after right cerebral infarction. *J Neuropsychiatry Clin Neurosci* 2008; 20:245–247
5. Matsuoka T, Kitabayashi Y, Shibata K, et al: Schizophrenia-like psychosis and dysfunction of the right-dominant temporoparietal lobe in early-onset Alzheimer's disease. *J Neuropsychiatry Clin Neurosci* 2010; 22:e8–e9