

Letter to the Editor



Repetitive and Stereotypic Vocalization in Dementia after Using Antipsychotics

Wonjae Sung , Hee-Jin Kim

Department of Neurology, College of Medicine, Hanyang University, Seoul, Korea

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Correspondence to

Hee-Jin Kim

Department of Neurology, College of Medicine,
Hanyang University, 222 Wangsimni-ro,
Seongdong-gu, Seoul 04763, Korea.
E-mail: hyumcbrain@hanyang.ac.kr

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ORCID iDs

Wonjae Sung

<https://orcid.org/0000-0002-4637-5890>

Hee-Jin Kim

<https://orcid.org/0000-0001-7880-690X>

Conflict of Interest

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Patients with dementia show various behavioral or psychiatric symptoms, including depression, delusions, hallucinations, and apathy.¹ Especially, geriatric patients diagnosed with Alzheimer's disease (AD) manifest repetitive and stereotyped behavior, resulting in stress and depression among caregivers.² Here, we report 2 patients with dementia presenting with a repetitive verbal sound of “eo-meo-ni”, meaning “mother” in Korean, after taking risperidone. We also suggest a possible neural mechanism for this phenomenon.

Case 1: An 85-year-old female visited the neurology outpatient clinic. She had previously been diagnosed with clinically probable dementia associated with AD and received treatment for three years. She suffered from persistent vocalization of “eo-meo-ni”, meaning “mother” in Korean. Her cognitive evaluation revealed a Korean Mini-Mental State Examination (K-MMSE) score of 7 and a Clinical Dementia Rating (CDR) score of 3. This symptom persisted for 2 months after taking risperidone (1 mg) as a sleep aid. Magnetic resonance imaging (MRI) revealed severe atrophy in the entire brain (**Fig. 1A**). Symptoms disappeared after discontinuation of antipsychotics.

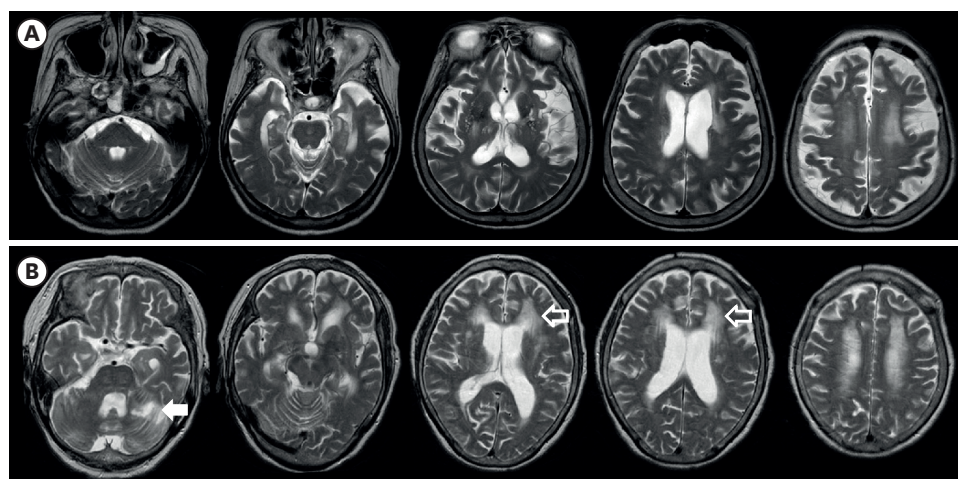


Fig. 1. T2-weighted MRI. (A) Case 1: Image shows severe brain atrophy in the whole brain, including bilateral confluent high-signal changes in the periventricular, subcortical, and left, external capsular white matter ischemic areas. (B) MRI of case 2 showing bilateral confluent high-signal changes in the frontal periventricular, subcortical, and left cerebellar ischemic areas, indicating chronic infarction with mild ventriculomegaly (open arrow). MRI: magnetic resonance imaging.

Case 2: An 81-year-old female patient visited the neurology outpatient clinic due to involuntary vocalization of the word “eo-meo-ni.” She had previously been diagnosed with vascular dementia and prescribed risperidone (2 mg) to manage insomnia. She was admitted to the nursing home, and upon arrival, she repeated the “eo-meo-ni” phonation. Cognitive examination revealed a K-MMSE score of 10 and a CDR score of 3. MRI of the brain revealed bilateral confluent high-signal changes involving multiple regions with mild ventriculomegaly (Fig. 1B). The repetitive vocalization diminished after discontinuing with risperidone.

The detailed mechanisms of the impact of antipsychotics on neurotransmitters and circuitries have yet to be elucidated. Studies involving repetitive verbal disruption in patients with dementia revealed that female subjects with dementia tend to show repetitive behavior, which is compatible with our patients.²

The stereotyped repetitive vocal response mechanism might be caused by ‘higher order’ or ‘cognitive’ and ‘lower order’ or ‘motor’ repetitive behavior.³ The first patient’s (case 1) symptoms occurred after treatment with antipsychotics, suggesting a large spectrum of compulsive/impulsive behaviors related to dysfunction of the dopaminergic system. The second patient (case 2) also exhibited vocalization symptoms following risperidone treatment, simultaneously arriving at a dementia care facility. Since her brain MRI presented far more extensive changes in frontal subcortical white matter than the first patient, the deficit of higher-level attentional regulation due to brain lesions and the effect of antipsychotics may explain the patient’s stereotypical behavior.

A previous study had described the cessation of verbal agitation after taking citalopram, a selective serotonin reuptake inhibitor.⁴ Other studies showed that antipsychotics block dopaminergic pathways and inhibit serotonin pathways by binding to 5-HT_{2A} receptors.^{4,5} Since both patients showed verbal disruption (repetitive vocalization) after starting antipsychotics, the imbalance between dopamine and serotonin due to antipsychotics may contribute to the symptom onset. Since many patients with advanced dementia suffer from behavioral and psychological symptoms, clinicians frequently prescribe antipsychotics to control symptoms. Clinicians should pay attention to predictable side effects such as repetitive behavior before prescribing antipsychotics to patients with dementia.

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