



Lurasidone Treatment for Delusional Infestation in a Patient with Dementia

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Delusional infestation has been described since 1894. The variety of treatments of delusional infestation has been administered in different atypical antipsychotic agents. Here, we present a case of first treatment with lurasidone on the delusional infestation in a 68-year-old female with vascular dementia, and the literature reviews of the related delusion infestation management.

Key words: Lurasidone, delusional infestation, dementia

INTRODUCTION

Psychotic symptoms such as delusions and hallucinations are frequently found in dementia.¹ The delusional infestation, which is also known as delusional parasitosis, has been described in medical literature since 1894, which was defined as a syndrome in which there is a fixed, false belief that one is infested with pathogens despite the absence of medical evidence.² Lurasidone is widely used in the treatment of psychotic and mood disorders.³ However, there are no available studies for the effects of lurasidone in delusional infestations or other psychotic symptoms of patients with dementia.⁴ Here, we report a case of a dementia-related delusional infestation of a snake that was successfully treated by lurasidone.

CASE REPORT

A 68-year-old female patient, without medical, personal, or family history of mental illness, except vascular dementia, was sent to the geropsychiatric outpatient department for her fixed delusional belief about “a snake that lives in my body,” and psychomotor agitation. Her first episode of the delusion of snake infestation can be traced back to 3 years ago, when she received a major operation of the left jaw osteonecrosis under general anesthesia, and experienced spontaneous remission after 3 weeks. In this case, her mood symptoms are just secondary to delusional infestation, such as worry and anxiety. There is no significant impairment in

attention and not fluctuated throughout the day. In addition, physical examinations, imaging examinations, and laboratory examinations were also arranged, which revealed the case has no other active medical and surgical diseases.

Then, the delusion of snake infestation, on and off over 2 years, and which was spontaneously resolved within 2 weeks. Besides, she presented a series of episodes of declining recent memory and was diagnosed with vascular dementia 14 months before this visit in a neurology department. A structural brain computerized tomogram revealed senile changes with cortical atrophy over the bilateral frontotemporal regions and chronic periventricular white matter ischemic change. The laboratory workup, including the glucose level, renal and liver function tests, serologic tests for syphilis, vitamin B-12 and red blood cell folate levels, and thyroid function tests, only found low-level folic acid (4.2 ng/mL). At first, she was receiving treatment with piracetam 1200 mg/day and folic acid 5 mg/day for disturbance behaviors and subjective distress due to the persistent delusional infestation for 1 month in the neurology department. For the cognitive function tests, the score of Mini-Mental Status Examination (MMSE) was 16 and the Clinical Dementia Rating (CDR) scale was 1.0, which showed recently cognitive function rapid deterioration (the MMSE score decreased from 20 points to 16 points compared with 1 month ago).

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She had no obvious response to persistent management among cognitive enhancer such as piracetam and folic acid supplement for 2 months. Then, she was sent to the geropsychiatric outpatient department under the circumstance of marked subjective distress due to the delusional infestation for 3 months, and additionally, she also suffered from auditory hallucinations with a voice discussing “about the snake,” persecutory delusion, and delusional of being under surveillance. Among contemporary antipsychotic drugs, lurasidone has a relatively well-tolerated side effect profile, with low propensity for sedation, cardiac arrhythmia, weight gain, and lipid-related adverse effects.^{5,6} The patient had a history of constipation for long time and had falling down several times, so we chose this lurasidone for its low side effect profile. Lurasidone 20 mg/day was initiated for the patient and titrated to 40 mg/day after 2 weeks. After 4 weeks of treatment, the delusion of the snake infestation subsided, and we increased the lurasidone dosage to 80 mg/day for the persistent auditory hallucinations. After 1 month of lurasidone treatment with 80 mg/day, the psychotic, including the auditory hallucinations symptoms of delusional infestation, became fairly controlled, but the extrapyramidal side effects (EPSE) such as rigidity was found. Therefore, we gradually tapered the lurasidone dosage to 40 mg/day, and then 20 mg/day in the following 3 months for maintenance treatment, and then the delusion of snake infestation and EPSE disappeared. The patient’s drug compliance was assured by her son, the major caregiver. The follow-up outpatient clinics in the following 3 years found that although the test scores (MMSE and CDR) did not change, the patient and her family reported that the memory of the patient had slightly improved. Perhaps the improvement was not large, so the test scores did not change.

DISCUSSION

There were several researches about the delusions in the cultural or subculture milieu related to snakes.⁷ However, in previous studies, patients with delusional infestation often falsely believed that they were “infested” by parasites or insects.⁸ This is a rare case of the patient falsely believing that there was a snake, instead of parasites or insects, in her body. Some previous reports have shown that the patients with delusional parasitosis are concomitant with tactile hallucinations,^{9,10} but in this case, there were no tactile hallucinations, and the underlying reasons are not clear. In addition, delusional infestations are rarely seen in patients with dementia and prior studies are limited.^{11–15} Furthermore, the patients with delusional infections might injure themselves in attempts to be rid of the “parasites,” resulting skin damages, as well as damage caused from using chemical substances

and obsessive cleaning routines.^{16,17} However, there was no self-harmful behavior in this case.

In this case, we presumed that the effects of lurasidone on the delusional infestation by the temporal relationship. Previously, several case reports have suggested that delusional infestation best responds to atypical antipsychotics, such as olanzapine,^{18–20} risperidone,²¹ aripiprazole,^{11,16,22–24} quetiapine,²¹ blonanserin,²⁵ or ziprasidone,²⁴ as listed in Table 1. However, it has also been successfully treated by haloperidol, pimozide, and lurasidone may also have such an effect.

Lurasidone, as a second-generation, serotonin-dopamine antagonist, has a favorable safety profile for the young patients with psychotic or mood disorders.³ One review pointed out that lurasidone is both of reasonable safety and efficacious in the acute and maintenance treatment for the elderly patients with bipolar disorders.²⁶ In addition, a study found that lurasidone, in the treatment for a patient with schizophrenia, showed improvement in the Measurement and Treatment Research to Improve Cognition in Schizophrenia Consensus Cognitive Battery.²⁷ This finding hints that lurasidone demonstrates the potential to improve cognition, and hence, could be beneficial for the elderly patients with dementia. As in this case, 3 years of follow-up showed that her cognitive function did not decline anymore, and the memory has improved a little. The prompt relief of EPSE by the decrease of the daily dosage in our case also supports the safety of the usage of lurasidone in the elderly patients with dementia. As with other atypical neuroleptics, lurasidone should be used with caution in the elderly due to an increased risk for a stroke, transient ischemic attack, and mortality compared to placebo,^{28–30} which was caused by atypical antipsychotics that are likely to cause metabolic syndrome. Recent studies on safety and tolerability have shown older adult treatment with lurasidone was associated with minimal effects on weight, lipids, and measures of glycemic control.^{31,32} Most geriatric patients used 60–80 mg/day of lurasidone, which appeared to be efficacious, well-tolerated.³³ Nonetheless, a further study is necessary for the safety profile in these older patients with dementia.

CONCLUSION

To the best of our knowledge, this is the first case of lurasidone as a successful treatment for delusional infestation. This therapeutic experience should serve as a reminder for the clinicians who are responsible for the care of patients with delusional infestation.

Ethical approval

The Institutional Review Board of the Tri-Service General Hospital, Taipei, Taiwan, as TSGH-IRB No.: C202005108.

Table 1: Summary of previous studies investigating the use of atypical antipsychotics for the treatment of delusional infestations

Author (year)	Types of articles	Psychiatric diagnosis	Age/sex	Drugs and dosage	Results	Adverse effects
Catriona F Howes <i>et al.</i> (Howes and Sharp 2018) 2018	Case report	Atomoxetine-induced DI	38/female	Olanzapine 5 mg/day	Her delusion had dissipated after 8 weeks	Not significant side effects
Laura Ponson <i>et al.</i> (Ponson, <i>et al.</i> 2015) 2015	Case report	Delusional disorder with DI	1 68 female	Aripiprazole 15 mg/day	Almost full remission after 8 weeks	No significant side effects
Ta-Chuan Yeh <i>et al.</i> (Yeh, <i>et al.</i> 2014) 2012	Case report	Amphetamine induced DI	1 26 male	Aripiprazole 2.5 mg/day	His delusion had dissipated after 3 weeks	No adverse effects
Bhatia MS <i>et al.</i> (Bhatia, <i>et al.</i> 2013) 2013	Case report	Delusional disorder with DI	45/male	Bonanserin 8 mg/day	Full remission after 3 weeks	Not recorded
Tarun Narang <i>et al.</i> (Narang and Singh 2012) 2012	Case report	Delusional disorder with DI	21/female	Olanzapine 10 mg/day	Partial remission after 6 months	Not recorded
Fábio Lopes Rocha <i>et al.</i> (Rocha, <i>et al.</i> 2012) 2012	Case report	DI related to CVH associated with visual impairment due to macular degeneration and considered dementia	95/female	Aripiprazole 15 mg/day (previous treatment consisted of quetiapine, risperidone, olanzapine and pericyazine, without improvement)	Asymptomatic after 2 months	Mild Parkinsonism
James H. Diaz <i>et al.</i> (Diaz and Nesbitt 2014) 2014	Case series	Case 1: Depression with DI Case 2 to Case 4: No specific psychiatric diagnosis	Case 1 (56/female) Case 2 (not recorded) Case 3 (45/female) Case 4 (51 female)	Case 1: Olanzapine, 5 mg/day Case 2 to Case 4: Antipsychotics not used	Case 1: Resolution of all symptoms after 1 month Case 2 to Case 4: Loss of follow up	Not recorded
Altunay IK <i>et al.</i> (Altunay, <i>et al.</i> 2012) 2012	Case series	Case 1: Delusional disorder secondary to general medical condition (head trauma, Vitamin B12 deficiency) with DI Case 2: Psychosis NOS with DI and slightly low level of Vitamin B12 Case 3: Delusional disorder, secondary to general medical condition such as Vitamin B12 deficiency, depression, and shared psychotic disorder Case 4: Schizoaffective disorder with DI,	Case 1 (65/female) Case 2 (71/male) Case 3 (51/female) Case 4 (27/female) Case 5 (65/female) Case 6 (65F female)	Case 1: Quetiapine 25 mg/day, Sertraline 50 mg/day, and Vitamin B12 parentally 1000 µg/d Case 2: Risperidone 2 mg/day and Vitamin B12 parentally 1000 µg/d Case 3: Quetiapine 50 mg/day, Fluoxetine 20 mg/day, and Vitamin B12 parentally 1000 µg/d Case 4: Risperdal 1 mg/day, sodium valproate 1000 mg/day, and Vitamin B12 parentally 1000 µg/d Case 5: Quetiapine 25 mg/day, with intolerable side effects, then psychotherapy once a week Case 6: Risperidone 2 mg/day and Vitamin B12 parentally 1000 mcg/d	Case 1: Partial remission Case 2: Partial remission after 2 months Case 3: Partial remission after 2 months Case 4: Complete remission after 6 months Case 5: Complete remission after 3 months Case 6: Symptoms subsided after 7 days	Case 1: No recorded Case 2: No recorded Case 3: No recorded Case 4: No recorded Case 5: Could not tolerate Quetiapine Case 6: No recorded

Contd...

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Table 1: Contd...

Author (year)	Types of articles	Psychiatric diagnosis	Age/sex	Drugs and dosage	Results	Adverse effects
		with low level of Vitamin B12 Case 5: Brief psychotic disorder with DI Case 6: Schizophrenia with DI, with Vitamin B12 deficiency				
Roland W. Freudenmann <i>et al.</i> (Freudenmann, <i>et al.</i> 2010)	Case series	Case 1: Delusional disorder with DI Case 2: DI secondary to cerebral microangiopathy	Case 1 (27/ female) Case 2 (72 female)	Case 1: Aripiprazole 10 mg/day Case 2: Ziprasidone 80 mg/days	Case 1: Almost full remission after 2 weeks Case 2: Partial remission after 3 weeks	Case 1: Not recorded Case 2: Dizziness

DI=Delusional infestation; CV=Complex visual hallucinations; NOS=Not otherwise specified

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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