Improvement of Hoarding Symptoms with Low-dose Quetiapine Treatment in Traumatic Brain Injury: A Case Report

Behaviors of saving and collecting possessions can range from normal to pathological state. Most patients with hoarding behaviors collect useless objects without conscious motivation or control. Hoarding after traumatic brain injury (TBI) has been studied, and its management remains a challenge in clinical practice. Here, we report improvement of hoarding behaviors after treatment with low-dose quetiapine in a patient with TBI.

Case Report

Ms. A, a 42-year-old Taiwanese female patient, started to develop hoarding symptoms at her age of 19 years after suffering from intracranial hemorrhage due to a traffic accident. She collected various kinds of items and retained them for the thoughts of valuable and possibly usable in future. Her hoarding symptoms had been worsened within recent years. The living space was clustered with piles of recycled waste, which caused great distress to her family. She was admitted to the acute psychiatric ward due to her aggressive behavior toward her mother after her collections being removed unwillingly.

On admission, the patient had poor hygiene in appearance and depressed mood. Results of the neurological examinations showed muscle weakness over right-side extremities. She also showed hardly interrupted circumstantial speech and emotional viscosity. Findings of the brain computed tomography (CT) showed old insults at the left frontal and temporal lobes, senile brain atrophy, and lacunar infarct at the left basal ganglia. She had repeated episodes of explosive outbursts of anger and violence when the scraps and newspaper were taken away from her. Her insight for hoarding was absent. She started to receive 50 mg/day of sertraline on day 1, and the dosage had been increased up to 150 mg/day on day 22. But her hoarding behaviors and related agitation remained. Due to limited treatment response, quetiapine was added on with 25 mg/day on day 28, which had been titrated to up to 75 mg/day within 1 week. Both the collecting urge and hoarding behaviors improved remarkably following uptitration of quetiapine. Mood disturbance and agitated behavior were diminished. The psychological assessment done on day 40 revealed obvious impairment of executive function in multiple domains including sustained/shifted attention, cognitive reflexibility, and eye–hand coordination. After a six-week hospitalization, she was discharged without hoarding symptoms.

Comment

The findings of brain CT of our patient were compatible with the findings of previous studies which show that problematic hoarding often results from traumatic insult to the frontal cortex. Several evidences suggest that ventromedial prefrontal and medial temporal brain regions are implicated in those hoarding symptoms [1]. The mechanism of TBI especially tends to damage the fronto-temporal regions and associated subcortical structures connected to the prefrontal cortex such as the cingulate, amygdala, striatum, and insula. Besides, orbito-frontal and ventro-medial areas particularly have been implicated in a wide range of emotional and behavioral sequelae of TBI arising from disruption to hot executive functions [2]. The basal ganglia have a rôle in the development and integration of psychomotor behaviors, involving motor functions. Its disturbances may play a part in depression, which is associated with several neuropsychological deficits including some suggestive prefrontal dysfunction [3].

In pharmacotherapy, some studies have identified the potential benefits of using serotoninergic antidepressants in hoarding disorder as in other obsessive spectrum disorders [4]. Vilaverde et al. reported that a 52-year-old male patient with hoarding disorder has a progressive improvement after taking fluvoxamine 300 mg/day and quetiapine 200 mg/day for nine months [5]. In our patient, nonetheless, 150 mg/day of sertraline did not relieve the hoarding behavior effectively. Studies related to psychopharmacological intervention for brain injury-related hoarding are limited, and the rôle of antipsychotic drug in this patient population is still unclear. Previous studies have demonstrated that the dopaminergic system has an important rôle in hoarding behavior, which may suggest the inadequate efficacy of antidepressants as a sole therapy for hoarding symptoms [6].

Quetiapine is a second-generation (atypical) antipsychotic drug that has antagonist action on 5-HT_{2A} and D_2 receptors. It also acts as a partial agonist on 5-HT_{1A} receptor which has been thought to potentiate the increases of dopamine [7] and acetylcholine release in the medial prefrontal cortex. We presume that hoarding symptoms may lessen through pharmacological actions on the D_2 and 5-HT_{1A} receptors. To our knowledge, this is the first case report about improvement of TBI-induced hoarding with low-dose quetiapine.

Along with aripiprazole and olanzapine, quetiapine has been approved by the US Food and Drug Administration as an add-on strategy for treatment-refractory depression in the dose range of 150–300 mg. The initial dosage is 25 mg/day and the final average dosage is 188 mg/day [8,9]. In our patient, her add-on dosage was 75 mg/day of quetiapine, which is lower than the lower end of range of 150–300 mg/day.

Taken together, the presentation of our case suggests that the hoarding behavior in brain injury hoarders could worsen after a long period of latency. Low-dose quetiapine may be

beneficial in the management of hoarding secondary to brain injury. The unique pharmacological actions on serotonin and dopamine receptors can explain its efficacy in relieving hoarding symptoms. The rôle of atypical antipsychotic drug in the treatment of hoarding behaviors is worthy of further investigations. (This case report was approved by the institutional review board of Taoyuan Psychiatric Center for publication [protocol number = R20180906 and date of approval = September 12, 2018]. Written informed consent from the patient was also obtained for the purpose of publication).

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Conflicts of Interest

The authors declare no conflicts of interest in writing this report.

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