

# Acute Dystonia after Using Single Dose Duloxetine: Case Report

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Duloxetine is a balanced and potent serotonin and noradrenaline reuptake inhibitor which is known to be effective in depression and anxiety disorders. The common adverse effects include dry mouth, nausea, insomnia, somnolence, dizziness and constipation. Reported adverse effects of the extra pyramidal symptoms (EPS) are rare. In this case, a patient who suffered from acute dystonia, after only one dose of 30 mg duloxetine is presented.

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**Key Words** Duloxetine, Dystonia.

## INTRODUCTION

Duloxetine is a balanced and potent serotonin and noradrenaline reuptake inhibitor which is known to be effective in depression and anxiety disorders.<sup>1-3</sup> Common adverse effects include dry mouth, nausea, insomnia, somnolence, dizziness and constipation. Reported adverse effects of EPS are rare.<sup>4,5</sup>

Acute dystonia is characterized by prolonged muscle contraction, frequently presenting with marked head and neck muscle spasm with occasional jaw clenching and temporomandibular joint syndrome. Although, it is believed that the dystonia results from the abnormality of the basal ganglia, the pathophysiology of acute dystonia is not clear yet. However, a few cases of duloxetine induced dystonia are reported in the literature.<sup>5-7</sup> In this case, a patient who suffered from a neck spasm and pain which woke her up from sleep, dystonic distortion of the neck, tremor in her hands and lips after only one dose of 30 mg duloxetine is presented.

## CASE

Miss. M. is a 19-year-old, female patient. She was referred to

the emergency service with a sudden onset of severe neck spasm and pain, distortion of head, mild tremor in her hands and lips, mild pouting, movement of forehead and jaw clenching. The patient was aware of this situation and was in severe distress. She said that her complaints have started after 10 hours of taking only one dose of duloxetine 30 mg. Duloxetine 30 mg/day had been prescribed by another psychiatrist for her anxiety symptoms. She did not take any medication except duloxetine 30 mg/day. She did not have any history of head trauma, seizure, medical disease, substance abuse or family history of neuropsychiatric disorders.

The clinical presentation was interpreted as dystonia and Abnormal Involuntary Movement Scale (AIMS) was performed. The AIMS score was 22. Within 30 minutes after parenteral 5 mg biperiden administration, all signs and symptoms improved and dystonia were not observed throughout the 6-hour emergency service monitoring. During her treatment, a series of laboratory tests was performed to rule out secondary dystonia. These tests included complete blood count, erythrocyte sedimentation rate, liver, renal and thyroid function tests, blood glucose level, serum copper, zinc, iron, magnesium, ceruloplasmin level, total iron binding capacity, serum ferritin, vitamin B12, folic acid level, cranial magnetic resonance imaging and electroencephalogram. These examinations showed no specific findings. Thus, this manifestation was evaluated as duloxetine induced dystonia. Duloxetine was stopped. She regularly attended psychotherapy for anxiety disorder, not otherwise specified according to diagnostic criteria of DSM-IV. She was followed up six months without medication. Anxiety symptoms were not observed after psh-

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chotherapy and also dystonia did not appear again during this period.

## DISCUSSION

Medication induced acute dystonia can be a side effect of treatment with antipsychotics, antidepressants, antiemetics and other drugs. Its risk factors include male gender, young age, high dose and high potency antipsychotics and parenteral administration of antipsychotics.<sup>8-11</sup>

The pathophysiology of dystonia is not clear yet. Since acute dystonia is associated with antipsychotic medication, the hypothesis of dopaminergic system disturbance or impairment in dopamine-acetylcholine balance are commonly believed to be the underlying reason. Besides antipsychotic drugs, antidepressant agents may also cause either an increase or a decrease (through serotonin receptors that inhibit dopaminergic pathways) in dopamine levels resulting in movement disorders.<sup>12</sup> Additionally, the serotonergic system is considered to have complicated interactions with various receptor subtypes such as gamma amino butyric acid, and cholinergic system. Tonic inhibitor effect on dopaminergic functions via serotonergic neurons in brain stem and impairment in acetylcholine-dopamine balance are thought to be responsible for selective serotonin reuptake inhibitor (SSRI) associated acute dystonia.<sup>13</sup> There have been several case reports of acute dystonia in patients who treated with antidepressant agents such as fluvoxamine, sertraline, fluoxetine, citalopram, mirtazapine, paroxetine, venlafaxine and bupropion.<sup>3,14-16</sup> In addition, duloxetine-induced tardive dystonia and tardive dyskinesia case was reported in literature.<sup>17</sup> In a review, U.S. Food and Drug Administration Adverse Event Reporting System was researched and it was found that 89 patients with antidepressant induced EPS had been reported between 2005-2008. 59 of the reported cases were due to duloxetine, and 6 of them were acute dystonia.<sup>18</sup> This manifestation points out that, duloxetine is a more remarkable antidepressant than the others, in terms of acute dystonia. The pathophysiologic basis of dystonia remains obscure. Interconnection between the serotonergic and dopaminergic systems seems to play a major role. As a result of duloxetine strongly inhibits neuronal reuptake of serotonin and norepinephrine as shown in preclinical studies, increased serotonin transmission may inhibit dopaminergic neurotransmission.<sup>19</sup> Additionally, dystonia results from impairment of a normal dopaminergic-noradrenergic balance, in which noradrenergic tone preponderates. A relative norepinephrine hyperactivity may be caused by dopaminergic blockade (as occurs in drug-induced dystonia) or from enhanced release of norepinephrine (in idiopathic torsion dystonia).<sup>20</sup> Because of the inhibition of norepinephrine reup-

take and increased norepinephrine, dystonia can occur more with duloxetine than SSRIs. However, the role of single dose of duloxetine on the neurotransmitter system and its role in the appearance of dystonia needs to be supported in latter studies.

Although there have been few reports of antidepressant induced acute dystonia;<sup>3,14-16</sup> this painful, terrifying and sometimes life-threatening side effect, which needs early detection and management, these side effect can cause disturbance of the relationship between the physician and the patient.<sup>10</sup> Clinicians should be aware of the potency to cause EPS for all classes of antidepressant agents.

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