Very Low Single-Dose Quetiapine–Induced Myoclonus

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Myoclonus is sudden, involuntary, brief, shock-like jerky movements caused by muscular contractions or sudden lapses of muscle contraction in active muscles.[1] Drug-induced myoclonus is relatively rare. A French pharmacovigilance database study[2] reported an incidence of drug-induced myoclonus of 0.2% of the reported adverse events over a 20-year period. Typical and atypical antipsychotic medications have rarely been shown to precipitate myoclonus.[3] Quetiapine, a dibenzothiazepine derivative atypical antipsychotic, has been reported to have a relatively lower risk for drug-induced movement disorders. A PubMed search revealed only 4 cases of quetiapine-induced myoclonus, most of them at relatively high doses. Here, we report the case of a patient who developed myoclonus after taking a single dose of very low-dose quetiapine, and the jerky movements resolved completely after stopping the medication.

Case Report

A 64-year-old man presented alone to the outpatient psychiatry department of our hospital with complaints of not getting sleep for many years and recent-onset low mood, reduced interest, and tiredness. He was married and not working. He had no chronic medical conditions and was not taking any medications. He had no past or family history of psychiatric illness. His mental status examination revealed depressed mood along with depressive cognition. He was diagnosed with mild depression with insomnia not otherwise specified according to *ICD-10* criteria and was started on oral mirtazapine 3.75 mg/night. He reported no improvement in sleep after 10 days of taking the medication. Low-dose oral quetiapine (12.5 mg/night) was started along with mirtazapine for insomnia. He took both medications and developed severe recurrent jerky movements the next day. The movements consisted of sudden brief abrupt jerks of the trunk muscles that increased in lying down posture and lasted for a few seconds. The movements affected his mobility due to fear of fall. There was no impairment of consciousness or sensory functions. The jerky movements increased over the next 24 hours. Considering the temporal relationship with the drug intake and the jerky movements, he skipped his medications and came to the hospital the next day. He presented with persistent jerky movements only in lying down posture during examination in the morning, which gradually resolved by evening with no medications. An electroencephalogram (EEG) and brain imaging were planned if symptoms recurred, and he was prescribed oral clonazepam (0.75 mg/d) for associated anxiety. After 1 week, he reported no recurrence of jerky movements, and it was learned that he seldom took his medications after going home. Considering no recurrence of symptoms, the EEG and brain imaging were not done.

Discussion

This is the first report, to our knowledge, of myoclonus as an adverse effect of a single very low-dose quetiapine exposure. Our patient developed myoclonic jerks after exposure to quetiapine 12.5 mg, which resolved within 2 days of stopping the medication, suggesting a causal relationship. There are very few reports of quetiapine-associated myoclonus. Aggarwal and Jiloha[1] reported 2 cases of probable quetiapine-induced myoclonus. The first case was of a 19-year-old female with bipolar disorder who developed myoclonic jerks, especially involving the right upper extremity, with quetiapine at a daily dose of 400 mg, which resolved after reducing the dose to 200 mg/d. The other case was of a 17-year-old female with schizophrenia and a history of myoclonic jerks with clozapine, who again developed myoclonic jerks with quetiapine at a daily dose of 600 mg/d, which decreased after reducing the dose of quetiapine to 400 mg/d.[1] Velayudhan and Kirchner[4] reported a case of a 64-year-old man with schizophrenia who developed myoclonus with quetiapine at a daily dose of 800 mg/d that resolved after reducing the dose to 400 mg/d. Baysal Kirac et al[5] described a patient who had dementia and family history of juvenile myoclonic epilepsy who developed myoclonic status epilepticus 1 month after quetiapine was introduced.

Neuroleptic-induced myoclonus is more frequently reported among men as in our case. However, the dose at which quetiapine is associated with myoclonus is usually high (ranging from 400 to 800 mg) in published literature. However, there is a single report of myoclonus induced by quetiapine at a relatively low dose (75 mg/d), but the patient had an underlying neurodegenerative disorder and

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a positive family history of juvenile myoclonic epilepsy. Our patient had no comorbid medical illness or significant cognitive impairment, and he had a negative family history of seizure disorder.[5] A history of seizures and of myoclonus with other antipsychotics was reported as a potential predisposing factor in the published literature.[3] However, our patient had no history of seizures, and he was not exposed to any other antipsychotic medication. Another unusual clinical feature in our case is the sensitivity to posture (ie, more myoclonic jerks in lying down posture). There are few reports of myoclonic jerks sensitive to posture induced by classical antipsychotics, including haloperidol.[3]

Another possibility in our case is that mirtazapine may have induced the myoclonus directly or indirectly by altering the quetiapine doses. However, the symptoms in this case were time linked with the introduction of quetiapine, and the movements completely resolved after stopping the medication. Furthermore, there are no significant drug interactions between quetiapine and mirtazapine. Another differential diagnosis in our case is psychogenic movement disorder. However, the patient reported no new stressor after initiating treatment at our center, which makes psychogenic movement disorder an unlikely possibility. We could not do a meticulous electrophysiologic examination to obtain the Bereitschaftspotential to confirm the diagnosis, which is the major limitation of our report.

The pathophysiology of neuroleptic-induced myoclonus is not fully known. However, the action of quetiapine on serotonergic, dopaminergic, and γ-aminobutyric acidergic mechanisms can be the potential cause of myoclonic jerks in our case.[3] Our report highlights the importance of considering myoclonus as a rare side effect of quetiapine use even at very low doses to avoid costly investigations and unwanted treatments.

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