



A Case of Clozapine and Lithium Induced Myoclonus: The Kindling Effect*

Safaa Abdelhady MD¹, Omar Elmarasi MD², Aum Pathare MD FAPA², Yassir O. Mahgoub MD².

¹Mansoura Specialized Hospital - Egypt, ²Penn State Collage of Medicine

Background

Myoclonus is a brief, involuntary, and irregular jerking or twitching of a muscle or muscle groups, caused by sudden contractions or lapses of contraction. Several psychotropic medications including antidepressants, antipsychotics, lithium, and antiseizure medications can induce myoclonus, either individually or as a combination (Jiménez-Jiménez, 2004). We describe the case of a patient who had been on lithium and clozapine separately without event, but developed myoclonus when these agents were combined. The myoclonus persisted after clozapine dose reduction but improved with reduction in the dose of lithium, highlighting the synergism in their action..

Case Report

A 59-year-old female with a history of Bipolar I Disorder presented with irritability, aggression, loss of need for sleep, racing thoughts, dysphoric mood, and intense anxiety.

Her outpatient regimen had included bupropion 300 mg qAM, trazodone 50 mg at qHS, venlafaxine 150 qAM, mirtazapine 45 mg qHS, duloxetine 60 mg qAM, clonazepam 0.5 mg BID and lithium 300 mg qHS, with a corresponding level of 0.5 mEq/L. All antidepressants were discontinued, and she was started on clozapine. Lithium was also discontinued due to concerns for urinary incontinence. All her symptoms improved on clozapine 75 mg qAM and 125 mg qHS (level 312 mcg/L), apart from depression. Lithium was restarted and increased to 450 mg qhs (level 0.5 mEq/L). While depression improved, she developed recurrent jerky movements of her right arm suggestive of myoclonus. Clozapine was reduced to 50 mg bid with no change to myoclonus, which entirely resolved after the reduction of lithium to 300 mg qHS. The patient had tolerated lithium 600 mg daily (level 1.2) previously with no corresponding motor symptoms.

Discussion

Myoclonus has been described in association with several psychotropic medications. It is typically reversible, resolving rapidly with removal of the offending agent. Proposed mechanisms have included serotonergic, dopaminergic, and GABA-ergic systems, and associated illnesses such as epilepsy (Janssen, 2017). Clozapine lowers the seizure threshold, producing EEG changes that correlate with its dose and level. Lithium-induced myoclonus has been noted at non-toxic levels and was associated with EEG changes (Lemus, 1989). In our case, the patient's myoclonus did not present until she was on both these agents simultaneously, and a reduction of both their doses was instrumental in its resolution.

Conclusions

Myoclonus can occur with the use of antidepressants, antipsychotics, and lithium, either individually or in combination. Medication-induced myoclonus can be dose and level dependent and may need dose reduction in all offending agents for resolution.

References

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