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26. Bupropion: An Atypical Cause of Serotonin Syndrome Report from the ToxIC Registry

Calello DP1 , Troncoso AB1 , Geib AJ2 , On behalf of the Toxicology Investigators Consortium (ToxIC) 1 Morristown Medical Center, Morristown, NJ, USA; 2 Robert Wood Johnson Medical School, New Brunswick, NJ, USA

Background: Bupropion, an atypical antidepressant, has an unusual mechanism of action that includes reuptake inhibition of dopamine and norepinephrine but negligible effects on serotonin neurotransmission. There is debate about whether bupropion can lead to the serotonin syndrome. Case reports describe serotonin syndrome associated with bupropion in combination with other serotonergic agents. We sought to describe the patients with serotonin syndrome in association with bupropion as reported to the Toxicology Investigators' Consortium (ToxIC).

Methods: We accessed the ToxIC registry for cases in which "Serotonin Syndrome" was identified among the patient's signs/symptoms (from a drop-down menu) and for which bupropion was identified as a primary agent. The ToxIC registry was established in 2010 and is a multicenter prospective database of cases that were evaluated and treated by a medical toxicologist.

Results: There were 67 cases identified, 29 (43 %) male, with the majority of patients (n=50, 75 %) in the 19–65 year age group. There were 16 cases (24 %) under 18 years of age. The circumstances of exposure were Intentional (75 %), Unintentional (7 %), Adverse Drug Reaction or Effect (15 %), Unknown or Drug Abuse (1 patient each). In eight cases, bupropion was the only responsible agent listed. The most common agents listed in conjunction with bupropion were citalopram (n=9) venlafaxine (8), and sertraline (6). The most common classes involved were antidepressants. Symptoms, where reported, included hyperreflexia/clonus/myoclonus or tremor (69 %), delirium or agitation (58 %), tachycardia (51 %), and seizures (28 %). Benzodiazepines were listed as treatment in 66 % of cases; 12 % of cases listed cyproheptadine.

Discussion: Bupropion is thought to have a negligible effect on serotonergic neurotransmission; this series further illustrates what previous case reports have described: Bupropion may be a causative agent for serotonin syndrome. This is substantiated by cases in which bupropion was the sole agent listed. Bupropion does appear to be associated with the serotonin syndrome, both in the case of intentional overdose as well as adverse drug effects.

Conclusion: Avoidance of other serotonergic agents, in particular antidepressants, may be prudent in patients on bupropion. Moreover, the diagnosis is plausible in a patient with suspected bupropion exposure and signs of serotonin excess.