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Obsolete or Essential? Gastrointestinal Decontamination in Severe Bupropion Ingestions: A Case Series

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Background

Bupropion is a norepinephrine and dopamine reuptake inhibitor used for depression, tobacco cessation and ADHD. Overdose can result in significant neurological and cardiovascular toxicity including – lethargy, seizures, QRS/QT prolongation, and cardiogenic shock. Extended release formulations may result in delayed or prolonged toxicity. Therefore, gastric decontamination methods such as activated charcoal and whole bowel irrigation (WBI) may be considered to limit drug adsorption, and decrease transit time and absorption. However, gastrointestinal decontamination remains controversial, particularly in ingestions typically resulting in depressed mental status or seizures.

Discussion

We present a case series of three patients with severe bupropion toxicity successfully managed with gastric decontamination in conjunction with supportive care.

CASE 1

A 48-year-old male ingested 30-60 tablets of 300mg bupropion XL in a suicide attempt. He presented to the emergency department (ED) with a depressed mental status and myoclonic movement, and was subsequently intubated. He developed QTc (571ms) and QRS (170ms) prolongation. The patient presented within two hours of ingestion and pill fragments were visible on a computed tomography (CT) of the abdomen and pelvis. Activated charcoal was administered. WBI was then initiated with polyethylene glycol (PEG) until clear rectal effluent. Additional treatment included magnesium sulfate for QT prolongation, phenobarbital and propofol for myoclonic jerks and sedation, and bicarbonate for QRS prolongation. The patient's cardiac intervals and clinical status improved and the patient was extubated on hospital day (HD) 7 and discharged to psychiatric care.

CASE 2

A 21-year-old female ingested bupropion, hydroxyzine and alcohol and then was involved in a high speed MVC and suffered several traumatic injuries. CT imaging showed a significant number of pills in her stomach. Approximately 12 hours after her arrival to the ED, the patient experienced multiple seizures, prolonged QRS (100ms) and QTc (615ms). WBI was initiated with PEG, and additional treatments included magnesium sulfate, bicarbonate, vasopressors, and intralipid emulsion. She developed dysrhythmias and cardiogenic shock and was stabilized on intra-aortic balloon pump (IABP) and vasopressors. QRS and QT normalized with improved hemodynamics and the patient was discharged to inpatient psychiatric care on HD 14.

Conclusion

These cases highlight the positive outcomes and effectiveness of activated charcoal and WBI in the setting of severe bupropion toxicity. In a patient with a secured or stable airway and a significant ingestion of bupropion, these treatment regimens may be considered in addition to supportive care. Additional studies should be conducted to better understand efficacy of gastric decontamination and WBI in bupropion overdoses.

CASE 3

A 14-year-old female presented with a polypharmacy overdose including 30-60 tablets of 300mg XL bupropion, fluoxetine, acetaminophen and naproxen. The patient experienced multiple seizures requiring intubation for airway protection. The patient continued to have seizures and myoclonic jerks that did not respond well to benzodiazepines as well as QRS widening (100ms) and QTc prolongation (526ms). The patient was loaded with phenobarbital and WBI was initiated. The patient was extubated on HD 3 and was discharged to psychiatric care.