

A Lethal Mix-Up: Fatal Neurological Consequences of Accidental Rodenticide Ingestion

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Introduction

Bromadiolone, a potent rodenticide known as a superwarfarin, typically causes multi-organ haemorrhage in cases of acute poisoning. Rarely, acute intoxication can lead to neurological symptoms ranging from mild dizziness to life-threatening status epilepticus.

Case

A 19-year-old previously healthy Myanmar male presented to the emergency department two hours after intentionally ingesting two sachets of bromadiolone rodenticide. Shortly after ingestion, he developed recurrent vomiting and progressively impaired consciousness. Initial assessment noted the patient was restless, drowsy, exhibiting hypertension, tachycardia, tachypnoea, and hypoxemia. Lung examination revealed transmitted sounds, while other examinations were unremarkable. Within 20 minutes of arrival, he developed refractory generalized tonic-clonic seizures, unresponsive to anti-epileptic. Concurrently, his Glasgow Coma Scale (GCS) score declined, necessitating intubation for airway and cerebral protection. Initial laboratory investigations revealed significant leucocytosis, polycythaemia, severe metabolic acidosis with hyperlactatemia, acute kidney injury, elevated creatine kinase, and transaminitis. Coagulation profile was normal and CT brain revealed no haemorrhage. Activated charcoal was administered via nasogastric tube with aggressive crystalloid resuscitation (4L 0.9% NS) and antidote therapy (vitamin K 10mg slow infusion). Intravenous diazepam (10mg) and intravenous phenytoin infusion (15mg/kg) was given to control the seizures. Patient shows significant improvement of blood gas samples (initial pH of 6.915, HCO₃ of 8.6 to pH of 7.290 HCO₃ 18.8) and

improved lactatemia (initial lactate 24.0 to 1.4) after the initial resuscitation. Patient was further planned for plasma transfusion and MRI of the brain, however despite the initial positive response, the patient's condition deteriorated, leading to refractory seizures and ultimately death due to the severe tissue toxicity.

Discussion

Acute bromadiolone intoxication can cause life-threatening coagulation-independent neurotoxicity. Wang et al. and Jia et al. reported mild to severe central nervous system symptoms and characteristic MRI findings of cytotoxic intramyelinic oedema in the corpus callosum splenium, distinct from haemorrhage. Immediate resuscitation and vitamin K administration are crucial for addressing this specific vitamin K-dependent neuropathology.

Conclusion

Timely recognition of bromadiolone toxicity enables life-saving intervention. Vitamin K therapy is indispensable for reversing coagulopathy and mitigating direct neurotoxicity, independent of haemorrhage status.



Keywords: Rodenticide, status epilepticus, Vitamin K

References: Wang M, Yang Y, Hou Y, et al. Effects of bromadiolone poisoning on the central nervous system. *Neuropsychiatr Dis Treat* 2017;13:2297-300.

