



Poison HOTLINE

1-800-222-1222

August 2023



Did you know

To avoid dangerous baclofen withdrawal, the Iowa Poison Control Center (IPCC) recommends restarting the patient's usual home dose of baclofen within 24-48 hours after a baclofen overdose.

The abrupt discontinuation of baclofen, for any reason, can result in withdrawal symptoms which have included hyperthermia, tachycardia, altered mental status (i.e., hallucinations, delirium, agitation), exaggerated rebound spasticity, seizures, and hypo/hypertension. In rare cases, manifestations may progress to rhabdomyolysis, multiple organ-system failure, and death.

Health care providers can call the IPCC for a 24/7 consult with a board-certified toxicologist. **1-800-222-1222**

Brain Death Mimics

There are several substances which, in overdose, can mimic brain death in a patient. Brain death is a clinical diagnosis defined as death of an individual due to irreversible loss of all functions of the entire brain, including brain stem. These three drugs include baclofen, barbiturates, and benzodiazepines. However, there are other substances that can also mimic brain death that are lesser known and they include opioids, ethanol, bupropion, tricyclic antidepressants (TCA), and ethylene glycol.

Baclofen stimulates the GABA_B receptors which can cause muscle relaxation and slows the influx of calcium ions into the terminals, decreasing the release of excitatory amino acids, and inhibition of monosynaptic and polysynaptic reflexes in the spinal cord. Treatment is symptomatic and supportive care. There is no readily accessible rapid lab test for baclofen.

The mechanism of TCA's effect on the brainstem does not have an elucidated mechanism at this time, though this class of drugs is known to be sedating. TCA's can also cause disruption of nerve conduction due to the sodium channel blockade. In addition to symptomatic and supportive care, treatment with sodium bicarbonate may be indicated.

Bupropion functions differently than the other brain death mimics. Bupropion functions via reuptake inhibition of dopamine and norepinephrine. The exact mechanism/interference with brain stem reflexes is not known currently. There is no readily accessible rapid lab test available for bupropion.

Ethylene Glycol (EG) when co-ingested with benzodiazepines may cause a clinical syndrome that mimics brain death. It is unclear if the EG or its metabolites cause the brain death mimic. EG overdose may need to be treated with fomepizole and hemodialysis.

Caution must be used when using a urine drug screen to determine if a drug, such as a TCA or opioids are present. False positives can occur and, depending on the drug screen, not all substances may be detected or cause a positive screen. In addition to labs, EEG, head CT, and clinical assessment, a thorough history may help determine if your patient's presentation of brain death may be from a toxicological cause. Unfortunately, any of these in isolation can lead to an inaccurate diagnosis of brain death in certain scenarios.

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