

Session/Poster#

Presenter

A31

James Hiana

Neurology Resident

Advisor(s): Dr. Yaacov Anziska, Neurology

Neuroradiologic Features in Acute Ethylene Glycol Toxicity

Objective: Describe unique neuroradiological features of Ethylene Glycol poisoning.

Background: Ethylene Glycol (EG) is a sweet tasting, industrial compound that is ubiquitously found in various consumer products (antifreeze, paints, solvents, and cosmetics). Ingestion of EG results in toxicity with characteristic metabolic, pathological, and imaging findings.

Design/Methods: N/A

Results: A 64-year-old man with acute onset nausea, recurrent vomiting, and ataxic gait. In a few hours, he became progressively confused, lethargic, and eventually obtunded requiring intubation for airway protection. He was unresponsive but with preserved brainstem reflexes. Laboratory tests showed high anion gap metabolic acidosis (HAGMA) with pH of 7.23, bicarbonate of 13 mmol/L, anion gap of 38 mmol/L, and lactic acid of 2.2 mmol/L. Ethanol, salicylates, acetaminophen, and ketones were undetectable. Further tests revealed methemoglobin level of 1%, increased serum osmolality 328 mOsm/kg, and osmolal gap 71 mOsm/kg. CT head was normal. Due to the HAGMA with hyperosmolality suggesting a toxic alcohol ingestion, he was empirically treated with fomepizole 15 mg/kg. EEG showed severe diffuse cerebral dysfunction. He soon developed progressive renal failure requiring hemodialysis. MRI of the brain without contrast revealed bilateral symmetric enlargement of the basal ganglia and thalami with T2-weighted hyperintensities, as well as T2-weighted hyperintensities involving the brainstem and scattered cortical areas. EG concentration from blood drawn on admission resulted at 1962 mg/dL confirming EG poisoning.

Conclusion: This case highlights MRI brain findings of T2-weighted hyperintensities in deep gray matter structures in EG toxicity. Current scientific literature infrequently reports any neuroradiologic findings. Clinicians should be cognizant of these neuroradiologic features and use MRI as a supportive diagnostic tool in the proper clinical context while awaiting a definitive EG level.