Reversible leukoencephalopathy in sodium monofluoroacetate intoxication

A 38-year-old man presented with vomiting and progressive mental deterioration after ingesting 210 mL sodium monofluoroacetate solution (SMFA, 2%), a toxic rodenticide, in a suicide attempt. Neither seizure nor tetany was observed. Laboratory tests including ECG, arterial blood gas, serum calcium, and electrolyte were unremarkable. Initial MRI revealed extensive white matter restricted diffusion without disrupted neuronal integrity (figure, A and B). He improved to normal over 2 weeks. Follow-up MRI showed resolution of white matter abnormalities with unaltered metabolic markers (figure, C and D). SMFA selectively inhibits glial Krebs cycle and lowers energy production, with eventual cell death. Reversible MRI cytotoxic edema without neuronal loss suggests that SMFA intoxication is in the differential diagnosis of reversible leukoencephalopathy.

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Initial diffusion-weighted imaging (DWI) shows restricted diffusion in widespread white matter (A) and magnetic resonance spectroscopy (1H-MRS) shows normal N-acetylaspartate (NAA)/creatine and choline/creatine ratio (B). Follow-up DWI and 1H-MRS performed 1 month later reveal complete resolution of white matter abnormalities (C) with unchanged NAA/creatine and choline/creatine ratio (D).
Author contributions: J.B. Kim and Dr. Jang contributed to preparation of the images and drafting the manuscript. J.H. Kim contributed to supervision of the study and revising the manuscript.

Study funding: No targeted funding reported.

Disclosure: The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

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Neurology 2014;82;1190-1191
DOI 10.1212/WNL.0000000000000262

This information is current as of March 31, 2014

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