[ID-P#139] Seizure Caused by Ibotenic Acid in Patients with Mushroom Ingestion

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Background: Toxicity of ibotenic acid- and muscimol- containing mushrooms often involves gastrointestinal symptoms, central nervous system (CNS) excitation, or CNS depression. We herein to present a case report of seizure caused by ibotenic acid.

Case presentation: A 9-year-old girl ingested a cooked yellow-orange unknown mushroom. Two hours later, she experienced nausea and vomiting. At the emergency department, she was fully conscious, and vital signs were normal: temperature 36.6°C, blood pressure 134/78 mmHg, pulse rate 103 beats per minute, and respiratory rate 20 breaths per minute. At 2.5 hours post-ingestion, she had a generalized tonic-clonic seizure for about 1 minute and stopped spontaneously. Her Glasgow coma scale score dropped to E1V1M3, prompting the decision to intubate her. She received two doses of 5 mg diazepam to control agitation after intubation. Although the ibotenic acid-containing mushroom can induce seizures, gyromitrin-containing mushrooms could not be excluded. Therefore, we administered oral pyridoxine 70 mg/kg to control seizures. Laboratory results were unremarkable. She was given fluid hydration and supportive treatment. At 28 hours, she was extubated without further seizure episodes and discharged home on day 6. Two other adult patients who ingested it with our case also experienced seizures. The mycologist identified the mushroom from the picture as Hygrocybe sp. Urine analysis identified trace levels of ibotenic acid with liquid chromatography with tandem mass spectrometry (LC-MS-MS). However, muscimol was not detected.

Discussion: Ibotenic acid stimulates glutamate receptors, leading to seizures, especially in children. Gyromitrin leads to a depletion of gamma- aminobutyric acid and causes CNS excitation and seizures. Ibotenic acid-containing mushrooms cause early onset of gastrointestinal symptoms like ourcase, while gyromitrin-containing mushrooms may be delayed for 10 hours. Control of seizures with benzodiazepines is the treatment for ibotenic acid- containing mushrooms. Further study is needed to determine whether the Hygrocybe genus contains ibotenic acid.

Conclusion: Ibotenic acid-containing mushroom ingestion can cause seizures that can be successfully managed with supportive treatment.