Understanding Cerebellar Hippocampal and Basal Nuclei Transient Edema with Restricted Diffusion Syndrome: An Opiate-Related Neurological Emergency[1]

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Introduction

Cerebellar Hippocampal and Basal Nuclei Transient Edema with Restricted diffusion (CHANTER) syndrome is a condition that was first described in a 2019 case series. The syndrome is diagnosed based on a constellation of clinical and radiographic findings that occur in the setting of opiate exposure. Patients clinically present with cerebellar edema causing acute decreased consciousness and obstructive hydrocephalus. MRI findings include restricted diffusion in the cerebellar cortex, hippocampi, and basal nuclei. Here we describe a rare case of CHANTER syndrome.

Case Description

A 34-year-old man with a past medical history of seizures, drug use disorder, schizophrenia, bipolar disorder, asthma, and migraines presented to the ED after being found unresponsive approximately nine hours following heroin use. He received Narcan, Ativan, and Keppra loaded. He was intubated for acute encephalopathy and acute respiratory failure. He was subsequently admitted to the ICU for further workup. MRI was not feasible due to retained bullet fragments in his chest from trauma years prior.

CT head was consistent with toxic/metabolic encephalopathy along with significant bilateral cerebellar edema resulting in partial effacement of the basal cistern, fullness of the posterior fossa, and hypodensities within the bilateral basal ganglia with no herniation. CT head seven days later showed evolving infarcts in the bilateral cerebellum with effacement of the fourth ventricle and slight prominence of the temporal horns of the lateral ventricles as well as evolving infarcts of the bilateral basal ganglia. The patient was extubated eight days after presentation and able to follow some commands. Repeat CT head without evidence of disease progression. His physical activity and ability to verbalize continued to improve. He was accepted to inpatient rehab upon discharge.

Discussion

CHANTER syndrome was initially identified in adults but has been documented in pediatric populations. It also has been observed in similar frequency in both male and female populations. This syndrome has a presentation similar to pathologies such as ischemic stroke, hypoxic-ischemic encephalopathy, and other forms of toxic encephalopathy. Diagnosis is primarily based on MRI findings and treatment involves removal of the offending agent which has been shown to lead to rapid clinical improvement. In cases including severe cerebellar edema, there have been reports of ventriculostomy needing to be required. Prevention primarily involves careful management of opioid prescriptions and identifying signs of drug abuse. Educating patients and healthcare providers regarding the risks of opioid use can help mitigate the risk of developing this condition.

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