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Neuro-image : Milky Effluent after Therapeutic Plasma Exchange

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A 29-year-old woman was admitted to our intensive care unit for new-onset refractory status epilepticus (NORSE) requiring general anesthesia. Diagnostic workup found anti-NMDA-receptor antibodies. Because of ongoing seizure activity despite high-doses of propofol, midazolam and ketamine, therapeutic plasma exchange (TPE) was initiated every 3 days. A ketogenic diet (KD) was also started to optimize seizure control. On the fifth day of this regimen, TPE effluent turned milky white. Laboratory results found a triglyceride level of > 1500 milligram-per-decilitre (reference range 35 - 146). A diagnosis of KD-induced hypertriglyceridemia was made and the diet was discontinued. Triglyceride levels subsequently decreased to 350 milligram-per-decilitre the following day, and effluent color had normalized on later TPE. Propofol-Related-Infusion-Syndrome was also considered, however, the diagnosis was excluded given the decrease of triglyceride levels although Propofol doses were unchanged. ¹

This is, to our knowledge, the first report of lactescent plasma during TPE for NMDA-receptor encephalitis in a patient undergoing a KD. Lactescent plasma is a sign of severe hypertriglyceridemia and can occur when triglyceride levels reach >1000 mg/dL.² Causes include inborn errors of metabolism and acquired disorders, notably iatrogenic causes such as infusions of lipid emulsions or Propofol-Related-Infusion-Syndrome.³ KD complicated by

severe hypertriglyceridemia has been observed anecdotally, and given the timing and resolution of symptoms after discontinuation, seemed like the more likely candidate.

Acute pancreatitis is an acute and potentially life-threatening complication of severe hypertriglyceridemia. It is caused by the production of toxic by-products of triglyceride metabolism by pancreatic lipase. According to international guidelines, acute pancreatitis in this context can be managed by a low-fat diet and the administration of lipid-lowering agents. When standard medical care fails, TPE can be used to reduce levels of triglycerides and prevent pancreatitis recurrence.⁴

In our case, simple observation of the effluent plasma led to the discontinuation of KD to prevent further complications. This case report underlines the importance of observation in clinical practice and raises awareness of possible complications of KD.

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