Propofol Infusion Syndrome: a Serious Complication With a Commonly Used Drug in the ICU

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Propofol Infusion Syndrome: a Serious Complication With a Commonly Used Drug in the ICU

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INTRODUCTION

Propofol infusion syndrome (PRIS) is a rare and fatal syndrome that can be caused by doses of propofol that exceed 4mg/kg/hr for more than 48 hours. Concurrent use of catecholamines and glucocorticoids while using propofol has also been linked with PRIS.[1] PRIS can present with different symptoms including arrhythmias, metabolic/lactic acidosis, rhabdomyolysis, renal failure, hypertriglyceridemia, and cardiac failure. Symptoms can be associated with variables such as the rate of infusion (cardiac failure and metabolic acidosis), the duration of the infusion (arrhythmias), or to the cumulative amount of propofol used (rhabdomyolysis and hypertriglyceridemia).[2] These associations help predict symptoms but are not strict rules.

CASE DESCRIPTION

55-year-old female with past medical history of type 1 diabetes presented on day 3 as a transfer from an outside hospital with worsening hypoxia and day 3 of ventilator support due to parainfluenza pneumonia. Physical exam was limited due to sedation with remarkable findings including bilateral breath sounds present with end expiratory crackles more prominent on the right lung base. Abdominal distention was noted with 1+ pitting edema in the upper and lower extremities. The dose of propofol on admission was 50 mcg/kg/min and was slowly increased to a max dose of 80 mcg/kg/min over the next 3 days. Lab abnormalities on day 6 of hospitalization included creatinine 2.18 mg/dL, potassium 5.9 mmol/L, bicarbonate 13 mmol/L, triglyceride 2,192 mg/dL, and creatinine kinase total (CK) 1,483 U/L Based on the lab results, the patient had developed acute renal failure, severe metabolic acidosis, hyperkalemia, severe hypertriglyceridemia, and rhabdomyolysis which increased the suspicion for PRIS. The patient was promptly started on continuous renal replacement therapy (CRRT) for the acute renal failure and started on an insulin drip for the hypertriglyceridemia which resolved within 24 hours. Her CK normalized within 3 days. Thankfully the patient was subsequently taken off the CRRT and recovered fully prior to leaving the hospital.

DISCUSSION

Due to its favorable pharmacological properties, propofol is one of the more commonly used agents for sedation in the ICU setting.[3] PRIS is a rare but potentially fatal syndrome with mortality rates reaching as high as 66%. Due to its high mortality rates it is important for physicians to monitor for early signs of PRIS in order to decrease the risk of poor outcomes. The current mainstay of treatment is switching to a different sedative and providing supportive care to the patient. In the case presented above the cessation of propofol and management of its symptoms and complications led to the patient's eventual recovery from PRIS; however, it did increase the length of stay by a considerable amount.

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