

16. ACUTE KIDNEY INJURY TRIGGERED BY MANNITOL IN A PATIENT WITH NEOVASCULAR GLAUCOMA: A CASE REPORT

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BACKGROUND: Mannitol is commonly used to reduce intracranial and intraocular pressure as a treatment or preoperative measure in brain and eye surgeries by causing osmotic diuresis. Although the side effects of mannitol are minimal, in certain groups of patients with renal disease, it can cause serious complications. Here, we report a rare instance where a patient experienced severe electrolyte derangements due to the administration of mannitol before undergoing an ocular procedure. **THE CASE:** A 62-year-old male patient presented to the ophthalmology outpatient clinic with decreased vision and pain. He had a past medical history of type 2 diabetes, poorly managed with insulin and oral anti-diabetic drugs. Further investigation revealed neovascular glaucoma attributed to proliferative diabetic retinopathy. He was scheduled for trabeculectomy along with an anti-VEGF injection and was admitted to the hospital. He was given 350 ml of intravenous mannitol twice daily for three days before surgery. On the third day of admission, he complained of a cough. Subsequently, he developed worsening breathlessness, fatigue, and minimal lower limb swelling. His condition further deteriorated, resulting in altered sensorium. Additionally, low urine output was noted. On clinical evaluation,

bilateral basal crepitus was heard, suggesting pulmonary edema due to fluid overload. A POCUS was performed, revealing no effusions or clots. Laboratory findings showed significant hyperkalemia (serum potassium of 5.7 mmol/L) and hyponatremia (serum sodium of 118 mmol/L). Serum creatinine had risen to 3.3 mg/dL from a baseline of 1.5 mg/dL. He was severely acidotic with a pH of 7.09 and an anion gap of 12.6, with normal serum lactate and ketone levels. Elevated blood urea nitrogen and creatinine, along with a marked increase in serum osmolality, indicated mannitol toxicity with acute renal injury. Mannitol administration was immediately withdrawn, and the patient was started on intravenous diuretics, electrolyte correction, and supportive care, including high-flow nasal cannula oxygen therapy, before being transferred to the intensive care unit. A nephrology referral was obtained for further management. After aggressive treatment and electrolyte correction, his clinical condition stabilized, and his normal sensorium returned. **CONCLUSION:** This case highlights the potential risks of mannitol toxicity, particularly in patients with pre-existing renal impairment or those exposed to high cumulative doses. Careful monitoring of electrolyte levels and renal function in patients receiving mannitol and lowering the threshold for discontinuation at the first sign of toxicity is essential. Early recognition and rapid correction are crucial to prevent harmful complications.

Key Words: Mannitol, Acute Kidney Injury, Metabolic Acidosis.