HYPERTONIC SALINE VERSUS MIXED SALT SOLUTION FOR THE MANAGEMENT OF CEREBRAL EDEMA: A SINGLE-CENTER BEFORE-AND-AFTER STUDY

Mackenzie Moritz, Kerra Cissne, Louis Lipari, Austin Wilson, Melanie Smith, 2316 E Meyer Blvd, Pharmacy Level A, Kansas City, MO 64132 Mackenzie.Moritz@hcamidwest.com

Conventional management of cerebral edema uses hypertonic fluids such as hypertonic saline. Excess chloride load from intravenous fluids may lead to adverse outcomes such as increased rates of acute kidney injury in critically ill patients. The purpose of this study is to determine if patients who receive a hypertonic mixed salt solution (MSS) infusion will have a lower rate of acute kidney injury and need for renal replacement therapies than traditional hypertonic saline.

This is a single-center controlled before-and-after study. In October 2020, a change in protocol occurred wherein standard cerebral edema management transitioned from 3% hypertonic saline to hypertonic MSS. Hypertonic MSS is a 1:1 buffered solution containing sodium acetate and sodium chloride. Intensive care unit (ICU) patients who received 3% hypertonic saline for cerebral edema management from June 1, 2019 through October 6, 2020 will be included as the pre-intervention group. ICU patients who received a hypertonic MSS for cerebral edema management from October 7, 2020 through March 2021 will be included as the post-intervention group. Patients receiving either therapy will be identified and a chart review will be completed. Patients treated with either therapy for a non-cerebral edema management will be excluded. The primary outcome is a comparison of chloride load received from hypertonic therapy (mEq). Secondary outcomes for analysis include between group differences in: rate of acute kidney injury, need for renal replacement therapy, duration of renal replacement therapy (days), ICU length of stay (days), change in serum chloride (mEq/L), and change in serum bicarbonate (mmol/L).