

ORAL SODIUM PHOSPHATE LAXATIVE ASSOCIATED ACUTE RENAL FAILURE

Kelly Liang, Iasmina Craici, Kianoush Kashani, Hatem Amer, and John Dillon

Mayo Clinic, Rochester, MN, USA

A 58-year-old Caucasian male with a past medical history significant for hypertension, alcohol abuse, chronic pancreatitis and metastatic rectal adenocarcinoma underwent a colonoscopy with oral sodium phosphate for bowel preparation. He also received intravenous hydration. The next day, he presented for abdominoperineal resection of the tumor. During preparation for surgery, he appeared confused and experienced hemodynamic instability requiring transfer to the intensive care unit. Laboratory evaluation demonstrated: serum creatinine (Cr) 4.5 mg/dL (normal 0.8-1.3), BUN 58mg/dL (normal 8-24), and serum phosphorus 18 mg/dL (2.5-4.5). His previous Cr was 1.0 mg/dL, measured one month prior to the colonoscopy. He was initially oliguric (77 mL over 12 hours.) He was treated with continuous veno-venous hemofiltration (CVVH) for three days. Subsequently his Cr improved to 0.8 mg/dL one month later.

Oral sodium phosphate is commonly used as a laxative for pre-procedure bowel preparation. Because of its small volume, patients often prefer it to large volume isotonic bowel preparations. Unfortunately, it has been associated with severe adverse effects including fatal hyperphosphatemia, hypocalcemic tetany, hypernatremia, anion-gap acidosis, and acute renal failure. When renal failure occurs, the renal biopsy may show mineral deposition and interstitial inflammation. Retention of the phosphate solution due to bowel obstruction, volume depletion, or renal insufficiency may predispose patients to phosphate nephrotoxicity. In previous reports, Caucasian elderly female patients had the highest risk for phosphate nephropathy, but as our case illustrates, it may occur in other gender and age ranges as well.

This case lends support to the literature suggesting that oral sodium phosphate should be avoided as a bowel preparation in adults at risk for phosphate retention, including those with poor gut motility, renal insufficiency, congestive heart failure, radiocontrast administration, generalized debility, dehydration or enteric fistulas.