

FACTITIOUS HYPERPHOSPHATEMIA DUE TO SAMPLE CONTAMINATION WITH HEPARIN IN AN ARTERIAL LINE

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Hyperphosphatemia is a common problem encountered in CKD. In the absence of CKD, usual causes of hyperphosphatemia include exogenous intake, hemolysis, lactic and ketoacidosis, tumor lysis syndrome and rhabdomyolysis. Pseudo-hyperphosphatemia can occur in the setting of specimen hemolysis, hyperbilirubinemia, hyperlipidemia, and more commonly paraproteinemia. Here, we describe a case of factitious hyperphosphatemia due to sample contamination with heparin.

77 year-old male with diabetes and coronary artery disease, was admitted with constrictive pericarditis and pleural effusions. He underwent a pericardectomy but the right pleural effusion evolved to hydropneumothorax and trapped lung requiring decortication. His serum phosphorus level on admission was 2.8 mg/dL (2.5-4.5). Following the lung decortication his phosphorus rose from 4.8 mg/dL to 5.5, 10.4, 13, 16.5, 14.9 and 23.4 mg/dL over 36 hours. His ionized calcium decreased from 4.21 to 3.13 mg/dL (4.8-5.7). The patient was intubated and stable hemodynamically. His exam was unremarkable. He was on enteral nutrition and his formulation was changed when his phosphorus was 10.4 mg/dL to a lower phosphorus formula. There was no evidence of bleeding, hemolysis or rhabdomyolysis. LFT's, lactate and PTH were normal. Creatinine was normal (1-1.2 mg/dL) and urine output was 100 cc/h on average. His medications included digoxin, pantoprazole, fluticasone/salmeterol, insulin, and heparin subcutaneously.

Because the clinical and laboratory data could not explain the hyperphosphatemia, a lab error was suspected. However, serial measurements of phosphorus confirmed the elevation. Further investigation, revealed that all the blood specimens were drawn from an arterial line in which patency is usually maintained by a heparinized saline solution buffered by a phosphate solution (1000 U heparin solution with 2U/ml Na heparin in 0.9% NaCl contains around 103 mg/dL of phosphate). A phosphorus level checked on a specimen drawn from a central line was normal at 4.8 mg/dL.

Factitious hyperphosphatemia secondary to heparin flushes is not well recognized and nephrologists should be aware of this entity to avoid unnecessary investigations and treatments.