Clinical Laboratory Investigation of a Patient with Extreme Hypercalcemia

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CASE DESCRIPTION

A critical value for total calcium was reported on a 68-year-old female patient who was admitted to the emergency department 15 h prior. The patient’s laboratory results were significant for a serum total calcium of 16.8 (8.4 – 10.3) mg/dL, which was verified by replicate analysis, and her free calcium concentration of 2.25 (1.12 – 1.32) mmol/L. The patient’s serum phosphate was low at 0.5 (2.7 – 4.5) mg/dL, and her parathyroid hormone (PTH) was also suppressed at 6 (15 – 65) pg/mL. A review of the patient’s medical records revealed a past medical history significant for hypertension, hyperlipidemia, and non–insulin-dependent diabetes mellitus. Her medication list included aspirin (81 mg daily), pravastatin (80 mg daily), and verapamil (120 mg daily).

QUESTIONS TO CONSIDER

- What is the differential diagnosis for increased calcium concentrations and what other laboratory tests should be considered?
- What are the clinical symptoms of hypercalcemia?
- What are the common preanalytic and analytic confounders to reporting accurate calcium concentrations?
- In what conditions might it be therapeutic to intentionally increase a patient’s calcium concentration?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the February 2017 issue of Clinical Chemistry. To view the case and comments online, go to http://www.clinchem.org/content/vol63/issue2 and follow the link to the Clinical Case Study and Commentaries.

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