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)[2] 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.

Educational Centers

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