

A Case of Renal Osteodystrophy with Unexpected Serum Intact Parathyroid Hormone Concentrations

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CASE

A 64-year-old female with long-standing end-stage renal disease (ESRD), status post 2 failed renal transplants, was evaluated for management of renal osteodystrophy with particular concern for adynamic bone disease (ABD). ABD was suspected because of low normal serum intact parathyroid hormone (PTH) concentrations (range 2.5–54 ng/L, reference range 10–65 ng/L), intermittently increased serum calcium concentrations (range 88–107 mg/L, reference range 84–105 mg/L), and severe osteoporosis. However, her mildly increased serum alkaline phosphatase activities (range 149–196 U/L, reference range 30–120 U/L) were inconsistent with the low bone turnover observed in ABD. This discrepant clinical profile prompted investigation into the PTH assay used at our institution. Simultaneous samples were analyzed for intact PTH on our Roche Elecsys 2010 immunoassay analyzer and at a reference laboratory (Quest Diagnostics) on the Siemens Immulite 2000 immunoassay analyzer. Discrepant values of 48 and 786 ng/L were obtained, respectively.

Questions to Consider
• What are the roles of PTH in calcium and bone metabolism?
• What are potential explanations for immunoassay results that do not correlate with the clinical picture?
• What approaches can be used to investigate potential immunoassay interferences?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the September 2009 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol55/issue9> and follow the link to the Clinical Case Study and Commentaries.

Educational Centers

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