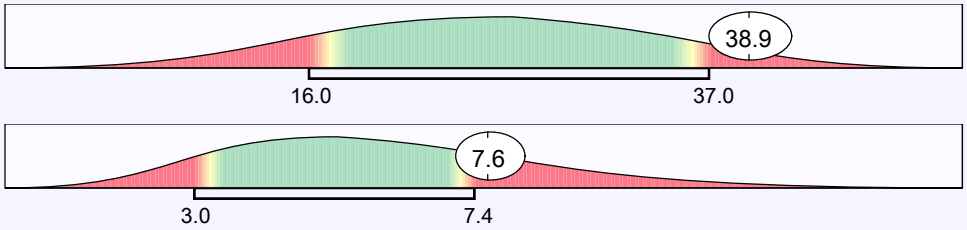
Bone Resorption Assessment (Urine)

63 Zillicoa Street
Asheville, NC 28801

Patient: **SAMPLE PATIENT**
DOB:
Sex:
MRN:

Chemistry Parameters



Commentary

Methodology: EIA and Kinetic (Jaffe)

Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or as treatment recommendations. Diagnosis and treatment decisions are the practitioner's responsibility.

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc.
All assays are cleared by the U.S. Food and Drug Administration unless otherwise noted with ♦.

Pyridinium crosslinks consist of both pyridinoline and deoxypyridinoline. Deoxypyridinoline is found predominantly in bone tissue, whereas pyridinoline is found in both bone and cartilage. Pyridinium crosslinks are released when bone is broken down (or resorbed). While not diagnostic of osteoporosis, these markers may be used to monitor bone resorption status and therefore are a useful gauge of treatment efficacy.

The level of pyridinium crosslinks is elevated. Abnormally high pyridinium crosslinks in urine suggest increased cartilage, connective tissue, and/or bone resorption. For example, pyridinoline might be elevated secondary to rheumatoid arthritis, lupus and other connective tissue disorders, osteoarthritis, or chronic alcohol ingestion. Similarly, periods of rapid growth or repair of connective issue (adolescence post-trauma) may lead to high levels.

Significantly elevated levels of pyridinium crosslinks have been noted in conditions such as hyperthyroidism, hyperparathyroidism, Paget's disease, multiple myeloma, hypercalcemia of malignancy, and certain cancers, particularly if associated with bone metastases. Elevations have also been seen with liver dysfunction, renal osteodystrophy, spinal cord injury, bone marrow transplantation, gastrointestinal diseases related to nutrition and mineral metabolism, cystic fibrosis, scleroderma, growth hormone disorders, growth hormone treatment, and estrogen deficiency.

The level of deoxypyridinoline (DPD) is elevated, indicating an increased rate of bone loss. In individuals with no underlying bone disease, this is an important marker in the development of osteoporosis. Elevations of DPD may also suggest a recent fracture (levels may stay elevated for up to a year), or a rapid state of bone development as is found

Commentary

in adolescence. DPD is naturally elevated in pregnancy and the post-partum period, with levels gradually returning to pre-pregnancy levels during lactation.

Increased excretion of DPD has been associated with various factors, including running, prolonged bed rest (4 days or longer), excessive dietary sodium, vitamin D deficiency, and low intake of copper, potassium, magnesium, beta carotene, and fiber. A healthy diet high in calcium and other trace elements, adequate vitamin D and K, and regular moderate exercise have been proven to decrease the rate of bone resorption and contribute to building of bone.