Sonora Quest Laboratories
A Subsidiary of Laboratory Sciences of Arizona

Test Summary

Collagen Cross Links, N-Telopeptide (NTx), Urine

Test Codes:		
	2nd Morning Void	10922
	24 Hour Urine	90080

Clinical Use

- Monitor therapeutic response in patients with metabolic bone disorders
- Predict future bone mineral density (BMD)
- Predict therapeutic response prior to initiation of antiresorptive therapy
- Detect bone metastasis in patients with various malignancies

Clinical Background

Osteopenia and osteoporosis are characterized by low bone mineral density (BMD) leading to bone fractures that may result in full recovery or chronic pain, disability, and even death. Healthy levels of BMD are maintained by a balance between bone resorption and bone formation. N-telopeptide (NTx), the amino-terminal cross-linked peptide of type I collagen, is released during bone resorption and has been correlated with BMD T-scores.[1] Multiple studies have shown that NTx not only correlates inversely with BMD response to therapy, but also is an early marker or predictor of BMD response. Thus, therapeutic response can be determined within 3 to 6 months of therapy rather than 1 to 2 years.[2-4] Studies have also demonstrated that elevated pretreatment NTx values predict positive response to therapies such as hormone replacement therapy in postmenopausal women.[4,5] In patients with malignancies, elevated levels of NTx may indicate bone metastases.[6-8]

The above clinical utility was established based on urinary measurements.[9-12]

Individuals Suitable For Testing

- Individuals who are about to begin antiresorptive therapy
- Individuals who are currently receiving antiresorptive therapy
- Individuals with suspected bone metastasis

Specimen Requirements

2nd Morning Void: 2 mL urine in a sterile screw cap container (1 mL minimum). Do not use preservatives. Acidified specimen is not acceptable. Discard the first morning void specimen. Collect the second morning void, mix well.

24 Hour Urine: 2 mL refrigerated urine from a 24-hour urine collection. Do not use preservatives. Acidified specimens are not acceptable. Keep refrigerated during collection.

CPT Codes*

- 82523, 82570

Method

- Enhanced Chemiluminescence
- Utilizes an immobilized monoclonal anti-NTx antibody
- Results are reported in nanomoles of bone collagen equivalents per mmol creatinine
- Synonyms: type I collagen cross-linked N-telopeptide, NTx

Interpretive Information

Increased N-telopeptide results in urine indicate an increased rate of bone resorption. Such increases may be observed in osteopenia, osteoporosis, celiac disease, Paget's disease, primary hyperparathyroidism, rheumatoid arthritis, and growth hormone deficiency (non-adult onset). Early postmenopausal women (<3 years postmenopausal) with second morning void NTx levels ≥67 nmol/mmol creatinine experience the greatest benefit from hormone replacement therapy (HRT). A ≥30% decline in second morning void N-telopeptide concentration following 6 months of HRT is indicative of a positive therapeutic response in postmenopausal women. 88% of women with such a decline were shown to have maintained or increased their BMD at 1 year.[4] Similar declines in NTx and similar correlation with BMD was observed post alendronate therapy.[2]

An N-telopeptide result within the premenopausal reference range does not rule out osteoporosis or the need for therapy.

References

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