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## SHORT REPORT

# Serum 25-hydroxyvitamin D levels in early and advanced breast cancer

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## ABSTRACT

**Background:** Laboratory and epidemiological studies have implicated vitamin D deficiency in the pathogenesis of breast cancer. 1,25-Dihydroxyvitamin D (1,25(OH)<sub>2</sub>D) promotes differentiation and apoptosis, and potently inhibits proliferation of malignant breast epithelial cells in culture. Serum levels of 1,25(OH)<sub>2</sub>D are higher in normal women than in patients with primary breast cancer.

**Aim:** To clarify the role of vitamin D in breast cancer progression by comparing the levels of serum vitamin D in patients with early and in those with advanced breast cancer.

**Methods:** Circulating levels of 25-hydroxyvitamin D (25(OH)D), parathyroid hormone (PTH) and calcium were measured prospectively in 279 Caucasian women with invasive breast cancer, 204 women with early-stage disease and 75 women with locally advanced or metastatic disease.

**Results:** Patients with early-stage breast cancer had significantly higher circulating levels of 25(OH)D

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( $p < 0.005$ ) and significantly lower PTH ( $p < 0.001$ ) levels than those with advanced disease. Calcium levels did not differ significantly ( $p = 0.74$ ).

**Conclusion:** Serum levels of 25(OH)D are significantly higher in patients with early-stage breast cancer than in those with locally advanced or metastatic disease.

**Abbreviations:** 1, 25(OH)<sub>2</sub>D, 1,25-dihydroxyvitamin D; 25(OH)D, 25-hydroxyvitamin D; PTH, parathyroid hormone

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