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**G-CSF induces elevation of circulating CA 15-3 in breast carcinoma patients treated in an adjuvant setting.**

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**Source**

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**Abstract**

**BACKGROUND:**

Cancer antigen 15-3 (CA 15-3), a circulating marker that determines secreted products of the polymorphic MUC1 gene, has been established as a convenient tool for monitoring breast carcinoma patients.

**METHODS:**

The authors investigated alterations of soluble CA 15-3 in 57 postoperative breast carcinoma patients while they were receiving intensified adjuvant chemotherapy with granulocyte colony stimulating factor (G-CSF) support; 26 patients had American Joint Committee on Cancer (AJCC) Stage II, and 31 patients had AJCC Stage III breast carcinoma. Serial CA 15-3 values recorded throughout the treatment were compared with baseline values, analyzed for correlation with hematologic and biochemical parameters, and compared with clinicopathologic characteristics and patient outcome. At a median follow-up time of 32 months, 47 of these patients remained relapse-free.

**RESULTS:**

A twofold increase of CA 15-3 was detected at the end of the second week of treatment, remained significantly elevated in most patients at above the cutoff level of 30 U/mL throughout the treatment period ( $P < 0.0001$ ), and subsided to pretreatment values 1-2 months after treatment cessation. CA 15-3 values were found to be associated strongly with absolute neutrophil count, serum lactate dehydrogenase, and alkaline phosphatase. The median values and the kinetics of tumor markers did not differ over time in regard to hormonal receptor status and disease recurrence.

**CONCLUSIONS:**

These data provide strong evidence that G-CSF administration can induce elevation of CA 15-3 and indicate that false-positive results should be considered when evaluating CA 15-3 in patients who are receiving G-CSF. It is speculated that this phenomenon occurs through the induction of MUC1 antigen of unknown origin by G-CSF. Experimental investigation of this clinical observation is warranted.