

## Prognostic Value of Troponin I in Cardiac Risk Stratification of Cancer Patients Undergoing High-Dose Chemotherapy

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Daniela Cardinale, MD; Maria T. Sandri, MD; Alessandro Colombo, MD; Nicola Colombo, MD; Marina Boeri, MD; Giuseppina Lamantia, MD; Maurizio Civelli, MD; Fedro Peccatori, MD; Giovanni Martinelli, MD; Cesare Fiorentini, MD; Carlo M. Cipolla, MD

**Background**—In patients with aggressive malignancies who are undergoing high-dose chemotherapy, even minimal elevation of troponin I (TnI) is associated with late left ventricular dysfunction. The time course of the subclinical myocardial damage and its impact on the clinical outcome have never been investigated previously.

**Methods and Results**—In 703 cancer patients, we measured TnI soon after chemotherapy (early TnI) and 1 month later (late TnI). Troponin was considered positive for values  $\geq 0.08$  ng/mL. Clinical and left ventricular ejection fraction evaluation (echocardiography) were performed before chemotherapy, 1, 3, 6, and 12 months after the end of the treatment, and again every 6 months afterward. Three different TnI patterns were identified, and patients were grouped accordingly. In 495 patients, both early and late TnI values were  $\geq 0.08$  ng/mL (TnI<sub>++</sub> group); in 145, there was only an early increase (TnI<sub>+</sub> group); and in 63 patients, both values increased (TnI<sub>++</sub> group). In the TnI<sub>++</sub> group, no significant reduction in ejection fraction was observed during the follow-up, and there was a very low incidence of cardiac events (1%). In contrast, a greater incidence of cardiac events occurred in TnI-positive patients, particularly in the TnI<sub>+</sub> group (84% versus 37% in the TnI<sub>++</sub> group;  $P < 0.001$ ).

**Conclusions**—TnI release pattern after high-dose chemotherapy identifies patients at different risks of cardiac events in the 3 years thereafter. This stratification allows us to differentiate the monitoring program and to plan, in selected patients, preventive strategies aimed at improving clinical outcome.

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