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

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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 _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 _0.08 ng/mL (TnI_/_ group); in 145, there was only an early increase (TnI_/_ group); and in 63 patients, both values increased (TnI_/_ group). In the TnI_/_ 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_/_ group (84% versus 37% in the TnI_/_ 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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