Cardiac Troponins T and I in Patients with End-Stage Renal Disease:
The Relation with Left Ventricular Mass and Their Prognostic Value

Adnan Abaci, M.D., FESC, Eyup Ekici, M.D.,† Abdurrahman Oguzhan, M.D., FESC,* Bülent Tokgoz, M.D.,† Cengiz Utas, M.D.†
Department of Cardiology, Gazi University School of Medicine, Ankara; Departments of *Cardiology and †Nephrology, Erciyes University School of Medicine, Kayseri, Turkey

Summary

Background: Cardiac troponins are frequently elevated in patients with end-stage renal disease (ESRD) in the absence of acute myocardial ischemia. The cause and prognostic value of cardiac troponin elevations in such patients are controversial.

Hypothesis: The aims of this study were (1) to define the incidence of cTnT and cTnI elevations in patients with ESRD, (2) to evaluate the relationship between troponin elevations and left ventricular mass index (LVMI), and (3) to evaluate the prognostic value of elevations in cTnT and cTnI prospectively.

Methods: We included 129 patients with ESRD (71 men, age 44 ± 16 years) with no clinical evidence of coronary artery disease. All patients underwent cardiac examinations, including medical history, physical examination, electrocardiogram, and transthoracic echocardiography. Left ventricular mass index was calculated and all patients were followed for 2 years.

Results: The cTnT concentration was > 0.03–0.1 ng/ml in 27 (20.9%) and > 0.1 ng/ml in 27 (20.9%) of the 129 patients. The cTnI concentration was > 0.5 ng/ml in 31 (24%) of 129 patients. Multiple logistic regression analysis identified LVMI (p < 0.001), diabetes (p = 0.001), and serum albumin level (p = 0.009) as a significant independent predictor for elevated cTnT. Left ventricular mass index was the only significant independent predictor for elevated cTnI (p = 0.002). There were 25 (19.4%) deaths during follow-up. Multivariable analysis showed that elevation of cTnT and cTnI did not emerge as an independent predictor for death. Serum albumin level (p < 0.001) was the strongest predictor of mortality, followed by age (p = 0.002) and LVMI (p = 0.005).

Conclusions: Cardiac troponin T and I related significantly to the LVMI. The increased serum concentration of cardiac troponins probably originates from the heart; however, they are not independent predictors for prognosis.

Key words: kidney, enzymes, hypertrophy, prognosis