Serum Levels of Cardiac Enzymes before and after Renal Transplantation

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Summary

Background: Cardiac troponins are very sensitive and specific indicators of myocardial damage; however, they are sometimes found to be increased in patients with end-stage renal disease (ESRD).

Hypothesis: The aim of this study was to determine cardiac troponin I (cTnI) and creatine kinase myocardial isoform (CK-MB) levels and to assess their diagnostic and prognostic importance before and after renal transplantation.

Methods: Thirty-four patients with ESRD (mean age 31.8 ± 8.6 years, 11 women) were enrolled. Serum levels of cTnI and CK-MB were measured pre- and postoperatively on Days 1, 7, and 30. Patients were followed up for cardiac events, and possible myocardial damage was investigated by exercise thallium-201-labeled myocardial perfusion scintigraphy. Mean cTnI levels were 0.24 ± 0.11 ng/ml (preoperative), and 0.34 ± 0.27 ng/ml (Day 1), 0.26 ± 0.11 ng/ml (Day 7), and 0.28 ± 0.30 ng/ml (Day 30).

Results: Compared with preoperative levels, cTnI was increased in 16 (47%), decreased in 6 (17.6%), and did not change in 12 (35.4%) patients. However, the increase did not exceed the myocardial infarction reference level of 2.3 ng/ml in any patient. Mean CK-MB levels were 12.6 (8.7U/l (preoperative), and 16.8 ± 9.2U/l (Day 1), 16.3 ± 8.1U/l (Day 7), and 13.3 ± 6.6U/l (Day 30). Creatine kinase-MB was increased to above normal levels of 24 U/l in 13 (38.2%) patients on postoperative Days 1 or 7, and decreased to normal at the end of Month 1. No cardiac events occurred, and there was no abnormality in any patient on thallium scintigraphy.

Conclusion: There was no significant difference in the levels of cTnI in patients with ESRD without cardiac events before and after renal transplantation (p > 0.05). Our findings show that cTnI has very high sensitivity and specificity for detecting cardiac damage in patients with ESRD after renal transplantation.

Key words: cardiac troponin I, creatine kinase-MB, end-stage renal disease, renal transplantation

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