Prognostic assessment of coronary artery bypass patients with 64-slice computed tomography angiography: anatomical information is incremental to clinical risk prediction

Summary / Zusammenfassung

OBJECTIVES: We sought to determine the incremental prognostic value of 64 multi-slice coronary computed tomography angiography (CCTA) in coronary artery bypass graft (CABG) patients.

BACKGROUND: Prognostication in CABG patients can be difficult. Anatomical assessment of native coronary artery disease and graft patency might provide useful information, but the utility of CCTA in the assessment of CABG patients is unknown.

METHODS: Six hundred fifty-seven CABG patients with all-cause mortality follow-up were identified from a multicenter CCTA registry, of 10,628 patients from 5 CCTA centers. Clinical risk was profiled with modified logistic and additive EuroSCOREs (European Systems for Cardiac Operative Risk Evaluations). The CCTA defined coronary anatomy. Patients were classified by unprotected coronary territory (UCT) or a summary of native vessel disease and graft patency: the coronary artery protection score (CAPS).

RESULTS: Forty-four deaths occurred during a mean follow-up of 20 months. Left ventricular ejection fraction, creatinine, age, severity of native vessel disease, UCT, CAPS, and EuroSCOREs were univariate predictors of mortality (p < 0.001). In multivariate analysis with additive EuroSCORE, UCT (p = 0.004) and CAPS were predictive of events (p < 0.001). In comparison with additive EuroSCORE, CAPS score was associated with a 27% net reclassification index.

CONCLUSIONS: Coronary computed tomography angiography provides incremental anatomical data to clinical risk assessment to help determine the prognosis of patients after CABG. The CAPS evaluation with CCTA might help identify those patients at highest risk.

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