

Sternum sparing multi-vessel coronary surgery: in-hospital and midterm results of total coronary revascularization via left anterior thoracotomy (TCRAT)

Objective:

A sternum sparing approach of minimally invasive total coronary revascularization via left anterior thoracotomy (TCRAT) demonstrated promising early outcome in coronary artery multi-vessel disease patients. However, follow-up data are still lacking. In-hospital and midterm results after coronary bypass grafting (CABG) in unselected patients with the TCRAT-technique were investigated.

Methods:

From 11/2019 to 9/2023, CABG via left anterior minithoracotomy on cardiopulmonary bypass (peripheral cannulation) and cardioplegic cardiac arrest (transthoracic aortic cross-clamping) was successfully performed in 392 consecutive, nonemergent patients (345 males; 67.0 ± 9.9 [32–88] years). Another 11 patients were converted to sternotomy intraoperatively. All patients had coronary artery disease with indication to surgical revascularization (three-vessel: 77.6%; two-vessel: 20.4%; left main stenosis: 32.9%). Patients at old age (>80 years: 12.5%), with severe left ventricular dysfunction (EF < 30%: 7.9%), diabetes mellitus (34.9%), massive obesity (BMI > 35: 8.9%), and chronic lung disease (17.1%) were included. Mean EuroSCORE2 was 2.9 ± 2.8 . Mean midterm follow-up was 15.2 ± 10.7 [0.06–39.5] months and was completed to 100%.

Results:

Left internal thoracic artery (99.0%), radial artery (70.4%) and saphenous vein (57.4%) grafts were used for total (41.6%) or multiple (29.1%) arterial grafting. 3.0 ± 0.8 (1–5) anastomoses per patient were performed to revascularize the territories of left anterior descending (98.7%), circumflex (91.6%), and right (70.9%) coronary artery. In-hospital outcome regarding mortality, myocardial infarction, repeat revascularization and stroke was 1.3%, 0.5%, 1.0%, and 0.3%, resp.. During midterm follow-up, death from any cause was 3.1%, myocardial infarction rate was 1.5%, repeat revascularization rate was 5.4%, stroke rate was 0.7% and overall MACCE rate was 8.7%.

Conclusions:

This is the first report of midterm follow-up in unselected patients undergoing TCRAT for multi-vessel coronary artery disease. Outcome was favourable and similar to that of current conventional full sternotomy CABG. Respecting sternal integrity might considerably improve acceptance of surgical myocardial revascularization.

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