

Coronary artery bypass grafting vs percutaneous coronary intervention in a 'real-world' setting: a comparative effectiveness study based on propensity score-matched cohorts.

Fortuna D, Nicolini F, Guastaroba P, De Palma R, Di Bartolomeo S, Saia F, Pacini D, Grilli R; on behalf of RERIC (Regional Registry of Cardiac Surgery); REAL (Regional Registry of Coronary Angioplasties) Investigators.

Abstract

OBJECTIVES. Most studies comparing coronary artery bypass grafting (CABG) and percutaneous coronary interventions (PCI) showed that fewer patients who had undergone CABG required repeat revascularizations, but no difference in survival, with the exception of some subgroups of patients. However, long-term real-world evidence on patients in whom both procedures are technically feasible is yet not available. The aim of this study was to compare 5-year rates of death, myocardial infarction (MI), target vessel revascularization (TVR) and stroke in a large cohort of patients with left main coronary artery (LMCA) or multivessel disease, treated with CABG or PCI (with or without DES) or PCI with DES only.

METHODS. Two propensity score (PS)-matched cohorts of patients undergoing revascularization procedures at the regional public and private centres of Emilia-Romagna over the period July 2002-December 2008 were used to compare long-term outcomes of PCI (6246 patients) and CABG (5504 patients).

RESULTS. PCI was associated with higher risk of death (HR = 1.6; 95% CI 1.4-1.8, $P < 0.0001$), MI (HR = 3.3; 95% CI 2.7-4.0, $P < 0.0001$) and TVR (HR = 4.5; 95% CI 3.8-5.2, $P < 0.0001$) at 5 years. No significant difference was shown for stroke (HR = 1.1; 95% CI 0.9-1.4, $P = 0.43$). CABG benefit was more evident in the risk of death in patients with two-vessel disease plus LMCA and in those with three-vessel disease, LVEF $< 35\%$, congestive heart failure and diabetes. Adjusted comparison with PS between PCI with DES only and CABG confirmed significant differences in favour of CABG for mortality, MI and TVR rates. Competing risk analysis showed that the difference in the mortality rate was due to higher rate of MI in PCI.

CONCLUSIONS. In the 'real-world' setting of this study, CABG was associated with significantly lower rates of death, MI and TVR in patients with LMCA or multivessel disease, so it remains the standard of care, particularly for patients with more extensive coronary disease and diabetes.