

Repeat revascularization impact on 10-year survival after PCI or CABG: post-hoc analysis of the SYNTAXES trial

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Background: Available data comparing Percutaneous Coronary Interventions (PCI) and Coronary Artery Bypass Graft (CABG) in multivessel or left main coronary artery disease (CAD) suggest higher rates of repeat revascularization events after PCI than CABG, with a negative influence on outcomes up to 5 years. The impact of repeat revascularization on very long-term outcomes remains unclear.

Aims: This study aims to investigate the impact on 10-year all-cause death of repeat revascularizations in patients with three-vessel disease (3VD) and/or left main coronary artery disease (LMCAD).

Methods: The SYNTAXES study evaluated the vital status out to 10-year of patients with 3VD and/or LMCAD enrolled in the SYNTAX trial. Repeat revascularization events occurred within the first 5 years from the index procedure were adjudicated by an independent clinical events committee. Effects of repeat revascularizations on 10-year all-cause death were investigated through time-dependent Cox regression analysis.

Results: During the first 5 years, 330 out of 1800 patients (18.3%) underwent a minimum of one repeat revascularization, for a total of 459 repeat revascularization procedures, mostly consisting of repeat-PCI (393,

85.6%). Repeat revascularizations were more frequent among patients initially randomized to PCI (HR 2.3, 95% CI: 1.8–3.0, $p < 0.0001$). At 10 years, all-cause death was comparable between patients underwent any repeat revascularization and those not (27.6% vs. 25.1%, adjusted HR 2.3, 95% CI: 0.8–6.2, $p = 0.11$). However, among patients requiring repeat revascularizations, who underwent initial PCI versus initial CABG presented a significantly higher 10-year all-cause death (32.7% vs 17.3%, $p = 0.004$). The adjusted risk for 10-year all-cause death according to the subtypes of repeat revascularizations revealed only revascularization with CABG was an independent predictor (HR 6.2, 95% CI: 1.5–25.2, $p = 0.011$).

Conclusions: In the SYNTAX trial, repeat revascularizations were more frequent after initial PCI. Although no difference on 10-year all-cause death was observed between patients who did undergo repeat revascularizations and who did not, higher death rates were reported among those required any repeat procedures after initial PCI or revascularization with CABG. These exploratory findings should be investigated with larger population in future studies.

