

Modified Residual SYNTAX Score and Clinical Outcomes in Patients with Multivessel Disease Undergoing Percutaneous Coronary Intervention

Background: There remains controversial regarding reasonable level of revascularization.

Objectives: We sought to determine reasonable level of revascularization using the modified residual Synergy Between percutaneous coronary intervention (PCI) with Taxus and Cardiac Surgery (SYNTAX) score in patients undergoing PCI.

Methods: In 3,460 patients with multivessel disease receiving drug-eluting stents, the residual SYNTAX score (rSS) was calculated for lesions with $\geq 50\%$ diameter stenosis in vessels ≥ 1.5 mm after PCI. The “modified” rSS (mrSS) was determined by counting lesions with $\geq 70\%$ diameter stenosis in vessels ≥ 2.5 mm. Patients were categorized into the complete revascularization (CR) group (rSS=0), incomplete revascularization (ICR) group (mrSS>0), or reasonable ICR (R-ICR) group (rSS>0, but mrSS=0).

Results: CR was performed in 908 patients, R-ICR in 1,562 patients, and ICR in 990 patients. After propensity matching analyses, the R-ICR group (n=1,143) had comparable risk of all-cause death (7.0% versus 7.7%; HR 0.84; 95% CI 0.58 to 1.22; p=0.36), repeat revascularization (14.0% versus 13.1%; HR 1.08; 95% CI 0.82 to 1.43; p=0.59), and a composite of all-cause death, myocardial infarction (MI), or repeat revascularization (20.6% versus 20.7%; HR 0.97; 95% CI 0.77 to 1.22; p=0.77) compared with the CR group (n=634) at 3 years. In separate propensity matching analyses, patients with R-ICR (n=1,229) had a lower risk of all-cause death (7.6% versus 11.8%; HR 0.73; 95% CI 0.55 to 0.96; p=0.02), repeat revascularization (13.8% versus 19.8%; HR 0.66; 95% CI 0.53 to 0.83; p<0.001), and a composite of all-cause death, MI, or repeat revascularization (21.2% versus 30.9%; HR 0.68; 95% CI 0.57 to 0.81; p<0.001) than those with ICR (n=833) at 3 years.

Conclusions: Our results suggest that revascularization of only lesions with $\geq 70\%$ diameter stenosis in vessels ≥ 2.5 mm is a reasonable goal for patients with multivessel disease and the mrSS is useful to determine reasonable level of revascularization.