OUTCOMES WITH THE USE OF INTRAVASCULAR ULTRASOUND FOR THE TREATMENT OF COMPLEX BIFURCATION LESIONS

i2 Poster Contributions
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Background: Bifurcation lesions account for 15 to 20% of percutaneous coronary interventions (PCI) and remain challenging with higher risk of adverse outcomes. Multiple techniques have been utilized to treat bifurcation lesions with variable reported success. We evaluated outcomes of patients with complex bifurcation lesions who underwent PCI with and without use of intravascular ultrasound (IVUS).

Methods: We reviewed technique and long term outcomes among consecutive patients with complex bifurcation lesions who underwent PCI at a single center between 4/03 and 7/10. Patients were stratified into groups according to the use of intraprocedural IVUS imaging guidance or no IVUS. Outcomes of interest included target lesion revascularization (TLR), myocardial infarction (MI), cardiovascular (CV) death, and all-cause mortality.

Results: A total of 412 patients with complex bifurcation lesions who underwent PCI were followed for 2.8 ± 2.1 years. The majority of lesions (83%) were bifurcation class Medina 1,1,1/Duke D. Patients in each group had similar baseline characteristics and bifurcation techniques for PCI. An IVUS-guided approach was used in 202 patients (49%). Drug-eluting stents were implanted in 86% of the IVUS-guided group compared with 78% of the no-IVUS group (p = 0.03). IVUS-guidance was associated with significantly lower rates of TLR (7.7% vs. 26.5%, p < 0.0001) and MI (4.1% vs. 14.2%, p = 0.0005) and a trend toward lower all-cause mortality (7.2% vs. 12.7%, p = 0.06) compared with no-IVUS; no difference was observed in CV death between the two groups. Logistic regression analysis controlling for DES vs BMS revealed significantly lower rates of TLR (OR 0.23, 95% CI 0.13 to 0.43; p <0.0001) and MI (OR 0.28, 95% CI 0.12 to 0.63; p = 0.002) but similar all cause mortality and CV death in the IVUS group compared with the no-IVUS group.

Conclusions: IVUS-guided treatment of complex bifurcation lesions was associated with significantly lower rates of TLR and MI at late follow up. Further study is warranted to fully evaluate the potentially important role of IVUS guidance in the treatment of complex bifurcation lesions.