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A comparison of culprit vessel only versus staged percutaneous coronary intervention in ST-elevation myocardial infarction patients with multivessel disease

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Background: ST-elevation myocardial infarction (STEMI) patients are frequently accompanied with multivessel disease. In patients without hemodynamic disorder, current guidelines recommend treating only the culprit vessel during the primary percutaneous coronary intervention (PCI), so when to treat the remained lesions need to be clarified.Methods: 352 STEMI patients with multivessel disease who had completed successful intervention of the culprit vessel during primary PCI were retrospectively included, and either assigned in the culprit vessel only revascularization (COR) group or the staged revascularization (SR) group. The primary endpoint was defined as 1-year major adverse cardiovascular events (MACEs) which included death, myocardial infarction (MI) and ischemic driven revascularization (IDR). The secondary endpoint was defined as each component of the primary endpoint.Results: The rate of 1-year MACE was higher in the COR group, but not reaching statistical significance (26.3% vs. 18.9%, p=0.148). The rates of 1-year all-cause death (6.5% vs. 0%, p=0.009) and cardiac death (5.7% vs. 0%, p=0.015) were both higher in the COR group. The incidence rates of MI (7.3% vs. 4.4%, p=0.334) and IDR (18.7% vs. 14.4%, p=0.352) were similar between COR and SR at 1-year follow-up. In addition, patients in the SR group were expected to have a lower risk of IDR with earlier revascularization.Conclusion: The SR strategy had lower rate of death at 1-year follow-up compared with the COR strategy in multivessel STEMI patients. Staged PCI should be recommended in multivessel STEMI patients. Certainly, large randomized trials are demanded to validate this conclusion.