In these days, primary percutaneous coronary intervention (PCI) is the mainstay for the treatment of patients with ST-segment elevation myocardial infarction (STEMI). However, STEMI patients are more likely to have multi-vessel disease (MVD) and co-morbidities, often leading to frustrated complications such as stent thrombosis even in the 2nd generation drug-eluting stent (DES) era. In this regard, there has been controversy about the clinical benefit of complete revascularization of the non-infarct-related coronary arteries.

There were early observational studies reporting that revascularization of non-infarct-related artery during the primary PCI leads to worse outcomes in MVD and STEMI patients by increasing in-hospital mortality.1) Promising clinical randomized trials have been reported in DES era, that favors complete revascularization in MVD and STEMI patients. In the Preventive Angioplasty in Acute Myocardial Infarction (PRAMI) trial2), preventive PCI in non-infarct-related coronary arteries was associated with 65% reduction of cardiovascular death, myocardial infarction (MI) and refractory angina. Complete versus Lesion-only Primary PCI (CvLPRIT) trial3) also demonstrated complete revascularization of non-infarct-related coronary arteries during index admission reduces the composite of death, MI, heart failure, and ischemia-driven revascularization by 55%. Intriguingly, in PRIMULTI trial,4) complete revascularization guided by fractional flow reserve measurements significantly reduced the risk of death, MI, and ischemia-driven revascularization by 44%.

Given these evidences, the American College of Cardiology Foundation/American Heart Association (ACC/AHA) and European Society of Cardiology (ESC) guidelines for non-infarct-related artery revascularization in STEMI patients with MVD were modified from an earlier class III indication into class IIb indication.5)6) However, most of the previous studies have been conducted using bare metal stent or early generation DES. Therefore, little is known about the efficacy of 2nd generation DES in STEMI patients with MVD. The 2nd generation DES is characterized by improved tissue compatibility and lesser risk of stent thrombosis to enhance a healing process; nowadays recognized as a mainstream treatment modality in coronary artery disease.
In this issue of the *Korean Circulation Journal*, Kwon et al.\(^7\) reported the beneficial effect of complete revascularization in STEMI patients with MVD by analyzing the data from the Incheon-Bucheon cohort of patients undergoing primary percutaneous coronary intervention for acute ST-Elevation myocardial infarction (INTERSTELLAR) registry. They compared the incidence of major adverse cardiac events (MACE) between the MVD patients treated with complete revascularization \((n=419)\) and those treated with culprit-only revascularization \((n=286)\). Complete revascularization of STEMI patients with MVD using the 2\(^{nd}\) generation DES was associated with a significant reduction of MACE by 36\%. Further, the incidence of cardiovascular death, the hardest endpoint, was also significantly lower in patients treated with complete revascularization (adjusted hazard ratio, 0.57; 95\% confidence interval, 0.32–0.97; \(p=0.03\)). This finding is consistent with the results of other groups.\(^8\)

This study possesses clinical importance since about 25\% of patients included for analyses had reduced left ventricular systolic function, which are usually excluded in randomized controlled trials. In conclusion, this study reinforces the usefulness of 2\(^{nd}\) generation DES in the treatment of STEMI patients with MVD, thus suggesting the up-to-date treatment strategy. However, previous studies included immediate and staged complete revascularization as complete revascularization in primary PCI and need to elucidate when immediate complete PCI can be recommended. Furthermore, criteria (anatomical or functional assessment) to intervene for non-culprit lesions should be suggested in future investigations.

**REFERENCES**


