Long-term outcomes of patients with late presentation STEMI undergoing percutaneous coronary revascularization

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Background/Introduction: Patients with late-presentation ST-segment myocardial infarction (STEMI) (12-48hr of symptom onset) tend to have worse clinical outcomes compared to early presenters (<12hr of symptom onset). The optimal management and decision for primary percutaneous coronary intervention (PCI) is limited by the current evidence, particularly in the modern revascularisation era.

Purpose: The aim of this study was to assess the short- and long-term clinical outcomes of primary PCI in patients with STEMI who present late following symptom onset (12-48hr) compared to those who present early (<12hr).

Methods: Data from 4265 consecutive patients undergoing PCI for STEMI within 48hr of presentation were analysed from the Melbourne Interventional Group registry between 2014 and 2020. Patients were categorised based upon symptom-to-door time (early <12hr vs late 12-48hr). The primary endpoints were in-hospital, 30-day and long-term mortality. Secondary outcomes were major adverse cardiovascular events (MACE; composite of all-cause mortality, non-fatal myocardial infarction, non-fatal stroke or repeat revascularisation), procedural outcomes and medications at 30-day.

Results: 4044 patients were early presentation and 221 patients were late presentation. The median symptom-to-door time was 1.73hr (interquartile range (IQR) 1.2, 2.8) for early presenters and 14.8hr (IQR 13.2, 18.1) for late presenters. Late presenters were less likely to have out-of-hospital cardiac arrest and require inotropic support (all p<0.01). There was no significant difference in in-hospital mortality (6.5% vs 5.4%, p=0.53) and MACE (9.0% vs 7.7%, p=0.52), nor 30-day mortality (7.4% vs 7.3%, p=0.94) and MACE (11.1% vs 10.5%, p=0.77). Long-term mortality did not differ between early and late presenters with hazard ratio 1.17 (95% confidence interval 0.71-1.95, p=0.54). There was no difference in major bleeding at 30-days (p=0.42).

Conclusions: Primary PCI in patients following late presentation STEMI is not associated with worse short- or long-term clinical outcomes compared to those who present early. Further, randomised controlled trials in the modern revascularisation era are needed to guide clinical practice.