EDITORIAL COMMENT

Long-term recurrent events in ST-elevation myocardial infarction and multivessel disease: The impact of different revascularization strategies

Doença multivaso no enfarte agudo do miocárdio com supra de ST. Quando revascularizar?

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Primary percutaneous coronary intervention (PCI) is the preferred reperfusion strategy in patients with ST-segment elevation myocardial infarction (STEMI) and reduces the risk of cardiovascular death and recurrent myocardial infarction when compared with thrombolysis.[1]

When coronary angiography for primary angioplasty is performed, multivessel disease (MVD) is common in approximately 50% of patients with STEMI.[2] The question that arises at this point is whether we should treat non-culprit lesions and when – in the initial procedure or subsequently.

Data from the first decade of this century in the US National Cardiovascular Data Registry and New York State's Percutaneous Coronary Interventions Reporting System[3] suggested an increase in adverse events, including mortality, in patients treated with immediate multivessel revascularization versus culprit PCI-only.

Metanalyses of randomized trials[4] comparing complete versus culprit-only revascularization in patients with STEMI show that immediate or staged complete revascularization results in a significant reduction in major adverse cardiovascular events driven largely by a reduction in repeat revascularization. There is no firm evidence for a reduction in death or myocardial infarction when compared with culprit-only revascularization.

More recently in the COMPLETE trial,[5] patients who were randomized to complete revascularization and underwent staged percutaneous coronary intervention (PCI) during the index hospitalization or after hospital discharge (within 45 days), showed that complete revascularization was superior to culprit-only revascularization at reducing death or MI.

In this issue of the Journal, Eva Rumiz et al.,[6] report on their study which aimed to assess the efficacy of three different revascularization strategies on long-term total recurrent events in patients with STEMI ST and MVD.

They retrospectively analyzed 414 consecutive patients who were categorized according to the revascularization strategy used: culprit-vessel-only percutaneous coronary intervention (PCI) (n=163); in-hospital complete revascularization (CR) (n=136); and delayed CR (n=115). The combined endpoint assessed was all-cause mortality, the total number of myocardial infarctions, ischemia-driven revascularizations or strokes.

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Multivessel disease was defined as the presence of at least one significant lesion in a non-infarct related epicardial coronary artery (N-IRA), which was amenable to successful treatment with PCI and located in a vessel with a diameter of at least 2.5 mm. Lesions were deemed significant angiographically when the vessel diameters presented at least 70% stenosis on visual estimation. The N-IRA lesion was never stented as part of the index culprit-lesion PCI.

Patients with cardiogenic shock at admission (n=103), those with planned surgical revascularization (n=36), left main coronary disease (>50% diameter stenosis) (n=81), previous coronary artery bypass grafting (CABG) surgery (n=51), and those who presented a new coronary chest pain during index admission due to N-IRA lesion (n=3) were excluded.

The median time until CR was two days (1–3) and 28 days (21–32), for in-hospital and delayed CR strategies, respectively.

The median length of hospital stay was six days (4–8). Patients who underwent in-hospital CR exhibited the most prolonged hospital stay, seven days (5–9) when compared with culprit-vessel-only PCI and delayed CR, which showed six (4–8) and five (4–6) days, respectively (p<0.001).

At a median follow-up of four years (1.2–6), rates of the combined endpoint per 10 patients- year were 18, 0.8, and 0.6 in culprit-vessel-only PCI, in-hospital CR, and delayed CR strategies, respectively (p<0.001). After multivariable adjustment and when compared with culprit-vessel-only PCI, both in-hospital and delayed CR strategies were associated significantly with a reduction of the combined endpoint (IRR=0.40; 95% confidence interval (CI), 0.25–0.64; p<0.001; and incidence rate ratio [IRR]=0.40; 95% IC, 0.24–0.62; p<0.001, respectively). No differences were observed across in-hospital and delayed CR strategy.

This study makes an important contribution to responding to issues in the field. Significant non-culprit lesions should undergo revascularization because it can reduce recurrent cardiovascular events compared to the culprit-vessel-only PCI strategy. Second, there are no significant differences in clinical endpoint between it being conducted at index hospital admission or after discharge. They observed a reduction of up to two days in hospital stay in the delayed CR group when compared with the in-hospital CR group; in-hospital CR was an independent predictor of a longer hospital stay.

Thus, in view of the recurrent lack of hospital beds in cardiology services, reducing the length of hospital stay in a safe way for patients and postponing revascularization of non-culprit patients after discharge could improve service management and cardiovascular care.

Conflicts of interest

The author has no conflicts of interest to declare.

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