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EDITORIAL COMMENT

Acute coronary syndromes with unprotected left main culprit lesion: The perfect storm

Síndromes coronárias agudas com lesão culpada do tronco comum não protegido: a tempestade perfeita

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The revascularization of unprotected left main coronary artery disease (ULMCAD) has been a matter of discussion, particularly in the drug-eluting stent (DES) era. Coronary artery bypass grafting (CABG) has been the standard of care since the 1970s, but the advent of DES brought about a very significant improvement in percutaneous coronary intervention (PCI). Since then, observational studies, randomized controlled trials (RCTs) and meta-analyses comparing both strategies have been published.

Overall, there appears to be a comparable risk of mortality and the composite of death, myocardial infarction (MI), or stroke, with higher rates of spontaneous MI and repeat revascularization in the PCI group and of procedural MI and stroke in the CABG group.[1–3] However, evidence of the impact of ULMCAD in the setting of acute coronary syndromes (ACS) is missing, since this population is not appraised in RCTs and observational and registry data are poor.

In this issue of the Portuguese Journal of Cardiology, Pereira et al.[4] present data on the clinical characteristics and outcomes from the Portuguese Registry of Acute Coronary Syndromes (ProACS) in the setting of a ULMCAD culprit lesion, comparing two revascularization strategies: PCI alone vs. CABG alone. The national coverage of this registry and the strength of its data, making it a powerful source of information, have already been published.[5]

The exclusion of all patients with previous CABG, those with missing information on revascularization or culprit lesion and those without revascularization or both revascularization strategies was essential in cleanse the sample, leaving 246 patients with ULMCAD culprit lesion treated with PCI or CABG alone.[4]

Interestingly, this study showed the influence of major RCTs on the revascularization strategy selection, with a higher percentage of CABG only in the years around the publication of the most recent large RCT on ULMCAD revascularization.

Clinical instability and disease severity, among other reasons, have led to urgent PCI, precluding the possibility of a heart team discussion, which is the mainstay for decision optimization in stable patients. This has left the PCI group with the most severely ill patients (ongoing STEMI, ongoing chest pain, cardiogenic shock, left ventricular disfunction, higher GRACE risk score), misleading all comparisons with the CABG group.

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It is of note that the PCI group had undergone a high quality PCI, with 81.9% of DES usage and 93.2% angiographic success.

Nevertheless, and unsurprisingly, the primary endpoint (major adverse cardiac or cerebrovascular events during hospitalization – 15.9%) was higher in the PCI group (27.1% vs 2.7%), with cardiogenic shock, hemoglobin level <12 g/dl and creatinine level >2 mg/dl being identified as independent predictors of its occurrence. As mentioned,[4] cardiogenic shock has been widely reported as an independent risk factor for adverse events in several studies.

Higami et al.[6] also identified cardiogenic shock in a similar population but found a correlation between survival and coronary flow status. In ACS patients without shock, initial thrombolysis in myocardial infarction (TIMI) flow grade $\leq$1 was associated with significantly higher mortality than TIMI flow grade $\geq$2. Whereas in ACS patients with shock, the initial TIMI flow grade did not affect mortality.

The thrombolysis in myocardial infarction flow grade was not assessed in the ProACS study; ULMCA occlusion (with consequent TIMI flow 0) was present in 11.4% of patients (19.5% in the PCI group vs. 1.8% in the CABG group), but was not identified as an independent risk factor.

In view of the impact of cardiogenic shock on mortality, it perhaps could lead us to wonder whether the results would have been better if mechanical support had been used more frequently (in spite of the disappointing results and consequent low level of recommendation, as recognized).

Finally, the all-cause in-hospital death rate in this very high risk and unstable ACS population with ULMCA culprit lesion who urgently underwent a high quality PCI was 24.1%.

Importantly, there was no difference in the secondary endpoint (one-year all-cause mortality after hospital discharge) between groups, which highlights the importance of prompt medical decisions for in-hospital survival and consequent mid-term prognosis.

The study by Pereira et al.[4] adds important information on this very high-risk and under-investigated population, underlines the importance of good quality and comprehensive registries, and offers good perspectives, compelling interventional cardiologists to perform PCI in unstable patients and in those with identified risk factors.

Conflicts of interest

The authors have no conflicts of interest to declare.

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