present study, patients in cardiogenic shock had twice as many bleeding events as patients without shock, probably due to their condition of greater severity, but the bleeding events could also result from the difficulty in obtaining information from the previous antecedents by the own critical situation and the limited patient collaboration.

For all this, we are faced with 2 therapies, cangrelor and abciximab, which offer rapid platelet inhibition, but are associated with increases in bleeding. Data on the comparison between both drugs are limited and reduced to information derived from the CHAMPION studies with 2 matched cohorts of 1,021 patients, with a considerable percentage without acute coronary syndrome and without cases of cardiogenic shock, in which similar rates of ischemic and hemorrhagic events were obtained between the 2 groups (4). Besides this, there is a incompatibility of cangrelor with the pre-treatment with clopidogrel (5), which is a very widespread oral antiaggregation option in patients with cardiogenic shock. Therefore, given the scarcity of data in the published reports and the great experience of the authors in this field, we believe that it would be of undoubted help if we could know their opinion on whether there is any reason to choose one option or another in this complex group of patients.

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Please note: The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

REFERENCES

REPLY: Cangrelor or Abciximab as First Choice in Cardiogenic Shock

Cardiogenic shock is characterized by abnormal hemodynamics, impaired gut absorption, and multiorgan system dysfunction, which collectively complicate traditional oral antiplatelet management after percutaneous coronary intervention (PCI). Potent, parenteral antiplatelet strategies are thus attractive in this setting, but patients with cardiogenic shock have been largely excluded from definitive randomized clinical trials. Dr. Lozano and colleagues discuss the potential adjunctive role of abciximab in these high-risk patients undergoing PCI. Given clinician familiarity, broad availability, and encouraging observational data (1), we agree that glycoprotein IIb/IIIa inhibitors (GPIs) can be considered in patients presenting with cardiogenic shock.

There have been limited data comparing the safety and efficacy of GPIs with cangrelor. We recently conducted 2 analyses based on data from ~25,000 patients in the 3 phase-3 CHAMPION (Cangrelor versus Standard Therapy to Achieve Optimal Management of Platelet Inhibition) trials (2,3). In the first analysis, we showed that GPI use was associated with significantly higher major bleeding, regardless of randomization to cangrelor or clopidogrel (3). In the second, propensity score-matched analysis, we showed that patients randomized to cangrelor who did not receive concomitant GPI experienced similar efficacy with lower risk-adjusted bleeding compared with patients randomized to clopidogrel who received GPIs (2). Although the CHAMPION trial program did not include patients in cardiogenic shock, the differential risks with respect to bleeding with GPI may be expected to be accentuated in this sicker patient subset. In the absence of head-to-head randomized clinical trial data, cangrelor may be preferred in this setting given the favorable pharmacological properties (rapidly acting, fully reversible) and bleeding profile compared with GPI. Our single-center, real-world experience further supports the low rates of stent thrombosis and severe or life-threatening bleeding in patients presenting with cardiogenic shock treated with cangrelor (4).

As Dr. Lozano and colleagues suggest, clopidogrel and prasugrel are commonly recommended to be given after completion of cangrelor infusion to avoid
and bleeding risks associated with 2 parenteral antiplatelet strategies.


RESEARCH CORRESPONDENCE

Early Risk Stratification in Patients With Cardiogenic Shock Complicating Acute Myocardial Infarction Treated With Extracorporeal Life Support and Primary Percutaneous Coronary Intervention

Despite advances of medical and interventional treatment mortality in patients with acute myocardial infarction (MI) complicated by cardiogenic shock (CS) remains high. Mechanical hemodynamic support in addition to immediate revascularization and optimal medical therapy may improve prognosis in these patients, although not supported by randomized trials (1). Extracorporeal life support by means of venoarterial extracorporeal membrane oxygenation (vaECMO) provides the maximum hemodynamic support but also demands the highest logistic requirements (2). For these reasons, vaECMO is often restricted to patients in advanced stages of CS as a last resort. It is presently unknown which patients benefit from this most invasive approach. Early risk stratification based on markers available at time of decision making might help to identify patients who could qualify for this treatment strategy.

We report on 104 consecutive patients with acute MI complicated by CS who were treated between January 2013 and February 2017 with primary percutaneous coronary intervention (PCI) and vaECMO at 4 university centers (Online Table 1). In total, 85 (81.7%) underwent cardiopulmonary resuscitation (CPR) before vaECMO implantation. In 45 patients (43.3%) vaECMO was implanted during resuscitation. All patients underwent immediate primary PCI. Final Thrombolysis In Myocardial Infarction (TIMI) flow...