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Can Geographical and Socioeconomic Status be the Best Prognostic Indicators of Cardiogenic Shock in the Modern Era of PCI?

Beytullah Çakal

Department of Cardiology, İstanbul Medipol University Faculty of Medicine, İstanbul, Turkey

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Dear Editor,

The incidence of cardiogenic shock (CS) is about 5-10% of the cases complicated by acute myocardial infarction (AMI).[1] Regrettably, despite increased rates of early revascularization, improvement in mechanical support devices (MCS), and adjunctive pharmacotherapies, mortality still remains high at about 50% at first month.[2] The devastating effect of shock in terms of major cardiovascular effect (MACE) among surviving patients after hospitalization declines slightly by the time, with similar mortality rates beyond one year compared with the non-shock group.[3] Therefore, new adjunctive strategies to reduce the occurrence and burden of CS to prevent and overcome this complication should be designed and implemented.

In this issue of the Journal, Shenoy et al.[4] provided data from a tertiary care center regarding MACE rates among early and late presenters with CS and emphasized socioeconomic disparities and the effects of rurality as important factors for MACE rates. They collected 92 patients with AMI complicated by CS and divided them into two groups according to the timing of presentation: early presenters (<24 hours, n=48) and late presenters >24 hours). The main finding was that late presenters with CS had a higher risk of in-hospital MACE (2.1% vs. 4.5%), primarily driven by increased in-hospital mortality and acute kidney injury (37.5% vs. 72.4%), whereas the gap in mortality tended to narrow at the first month follow-up. After considering the social determinants of presentation timing, lack of healthcare access for rural residents and low socioeconomic status (SES) were associated with a higher risk of developing late presentation.

The exceptionally high mortality rates in myocardial infarction patients experiencing CS highlight the shortcomings of conventional therapies. This should motivate us to investigate potentially adjustable factors that could enhance outcomes. Short-term acute mechanical circulatory support should be implemented when urgent hemodynamic compromise occurs in appropriately selected patients, as per the 2022 AHA (Class IIa, Level of evidence B-NR) and the 2021 ESC (IIa, C) recommendations. Crucially, there is no evidence to favor one MCS over another, and device selection varies by country and local expertise. Only IABP was used as the MCS in this study. Using other MCS devices, such as VA-ECMO or Impella, or combining them in these patients could also enhance survival, but future larger multicenter studies are required as well.

Recent data highlight the crucial necessity for timely implementation of MCS, especially in cases of MI-related CS, and this study makes a valuable contribution to the field.[5]

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Address for Correspondence: Beytullah Çakal, Department of Cardiology, İstanbul Medipol University Faculty of Medicine, İstanbul, Turkey
E-mail: bcakal@hotmail.com
ORCID ID: orcid.org/0000-0003-0230-6575

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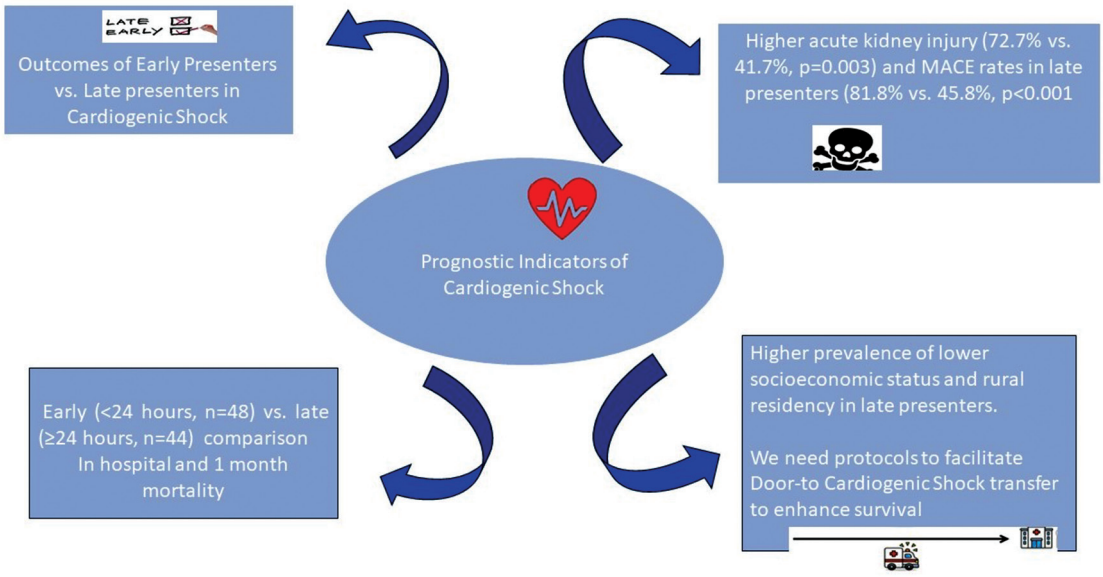

Graphical abstract of the present study

The authors found that patients with CS living in rural areas had significantly higher in-hospital mortality and adverse cardiovascular outcomes. Although there have been many innovations in percutaneous coronary interventions over the years and technological advancements are continually being sought, mortality rates have changed only slightly. Thus, this study is important in demonstrating that efforts to improve patients' access to health care services could significantly reduce mortality in the management of CS. Few studies have highlighted this issue. Recently, Naumann et al.[6] compared 30-day mortality in a large patient cohort (1720 CS patients) during on-hour and off-hours admission and found increased mortality during off-hours due to delays (41% vs. 48%).[6]

Previously, data from high-income countries have indicated that patients with AMI from lower SES backgrounds tend to experience longer reperfusion times.[7] Additionally, patients from lower SES areas are less frequently admitted to centers of excellence for cardiovascular care, thereby leading to a lower usage of MCS devices. Findings of this study are in line with data from high-income countries.

These findings highlight the necessity of recognizing this vulnerable patient group and underscore the importance of implementing policies that address specialized multidisciplinary teams with extensive expertise in managing patients with CS.

Ethics

Financial Disclosure: The author declared that this study received no financial support.

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