Hemodynamic support for high-risk percutaneous coronary interventions – patient selection

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KEYWORDS: cardiogenic shock, coronary intervention, high-risk percutaneous coronary interventions, impella catheter, mechanical circulatory support.

CITATION: Cardiol Croat. 2023;18(3-4):65. | https://doi.org/10.15836/ccar2023.65

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There is increased use of percutaneous mechanical circulatory support in patients with poor left-ventricular (LV) function undergoing elective high-risk percutaneous coronary interventions (HR-PCIs). Complex interventions often require long procedural times as well as special interventional skills and techniques such as rotational atherectomy or intravascular lithotripsy. Such interventions often carry the risk of hemodynamic deterioration especially in patients with reduced left-ventricular ejection fraction (LVEF). The use of percutaneous left-ventricular assist devices (p-LVADs) such as the Impella has the potential to minimize the risk of hemodynamic deterioration. However, the use of Impella may carry risks for the patient and requires experienced interventional cardiologists. Patient selection is an essential key feature to a safe and successful outcome.[1-3] Although the use of p-LVAD is well established in HR-PCI, there is no clear guideline recommendation for indication due to limited published data. CHIP score is a useful tool that can be utilized to help risk stratify patients undergoing HR-PCI. Patient factors (age ≥80 years, female sex, previous stroke, previous myocardial infarction, peripheral vascular disease, ejection fraction <30%, and chronic renal disease) and procedural factors (rotational atherectomy, left main PCI, 3-vessel PCI, dual arterial access, left ventricular mechanical support and total lesion length 60 mm) were associated with increased in-hospital major adverse cardiac and cerebrovascular events. These factors should be considered when determining the indication for support. The indication for HR-PCI and protected PCI should be made jointly by the heart team and risk scores should be used to guide discussion. Furthermore, it is suggested that protected PCI/HR-PCI procedures only be performed in specialized centers. Selection of appropriate patients is particularly important given potential p-LVAD-associated complications. In the absence of significant evidence-based knowledge, the multidisciplinary team, patient features, clinical conditions, and the respective experience of all team members play a major role in the decision-making regarding the use of protected PCI.

RECEIVED:
February 18, 2023

ACCEPTED:
February 22, 2023

LITERATURE

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