**THE ROLE OF HEMODYNAMIC SUPPORT IN THE MANAGEMENT OF AMI WITH SHOCK**

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Outcomes for Acute Myocardial Infarction (AMI) have improved significantly with acute Percutaneous Coronary Intervention (PCI). However, the incidence of associated cardiogenic shock (CS) has increased and remains a major cause of death. Factors associated with improved outcomes in AMI/CS include urgent PCI and complete revascularization. Given the continued risk of AMI/CS despite complete and rapid revascularization, an additional opportunity is effective hemodynamic support to provide safety during revascularization, to support coronary and systemic perfusion while limiting myocardial oxygen consumption with left ventricular (LV) unloading. IV inotropes, increase blood pressure, but they also increase afterload leading to higher myocardial wall stress and oxygen consumption. Mechanical support devices include the Intra Aortic Balloon Pump (IABP) not a true pump that minimally increases cardiac output. IABP use has failed to show improved survival in AMI/CS. Another device, Extra Corporeal Membrane Oxygenation (ECMO) effectively improves oxygenation when needed but does not unload the Left Ventricle (LV) and thus does not reduce myocardial oxygen requirements. The Impella temporary pump system provides optimal mechanical support in AMI/CS. The Impella Hemodynamic pump effectively increases mean arterial pressure, cardiac output and coronary flow while reducing LV filling pressures due to ventricular unloading. Impella support stabilizes cardiac hemodynamics while reducing myocardial oxygen consumption. The clinical experience of Impella 2.5 in AMI/CS in the USPella Registry demonstrated that early (before PCI) insertion of the Impella in the setting of AMI/CS was associated with improved survival. The pre PCI implant group had a hospital survival of 65.1% compared to 40.7% survival for the late support (post PCI) patients (p=0.003).

*Summary*: In AMI/CS, appropriately selected mechanical support using Impella provides effective hemodynamic stability with LV unloading potentially limiting myocardial damage, while providing safety and time for optimal revascularization.