

Final Results from The National Cardiogenic Shock Initiative

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Background: The National Cardiogenic Shock Initiative is a single-arm, prospective, multi-center study assessing outcomes associated with early mechanical circulatory support (MCS) in patients presenting with acute myocardial infarction and cardiogenic shock (AMICS) treated with percutaneous coronary intervention (PCI). (NCT03677180)

Methods: Between July 2016 and December 2020, 80 sites participated and enrolled into the study. All centers agreed to treat patients with AMICS using a standard protocol emphasizing invasive hemodynamic monitoring and rapid initiation of MCS.

Results: A total of 406 patients were enrolled with an overall survival to hospital discharge of 71%. Average age was 64 ± 12 years, 24% were female and 67% were admitted in shock. 85% of patients were on vasopressors or inotropes, 17% had a witnessed out-of-hospital cardiac arrest, 27% had in-hospital cardiac arrest, and 9% were under active cardiopulmonary resuscitation during MCS implantation. 73% presented in SCAI stage C/D shock and 27% in stage E. Patients presented with an average blood pressure of 77/50, lactate of 4.8 mmol/dL and cardiac power output of 0.67W. In accordance with the protocol, 71% of patients had MCS implanted prior to PCI. Right heart catheterization was performed in 93%. 82% of patients presented with ST-elevation myocardial infarction with a median door to support time of 78 (IQR 54-116) mins and door to balloon time of 82 (IQR 57-114) mins. Procedural survival, survival to discharge, survival to 30-days, and survival to 1-year were 99%, 79%, 77%, 62% for patients presenting in stage C/D shock and 98%, 49%, 46%, 32% for patients in stage E shock ($p < 0.01$).

Conclusion: Early use of MCS and invasive hemodynamics is associated with improved outcomes. A randomized control trial evaluating the NCSI treatment strategy is warranted.