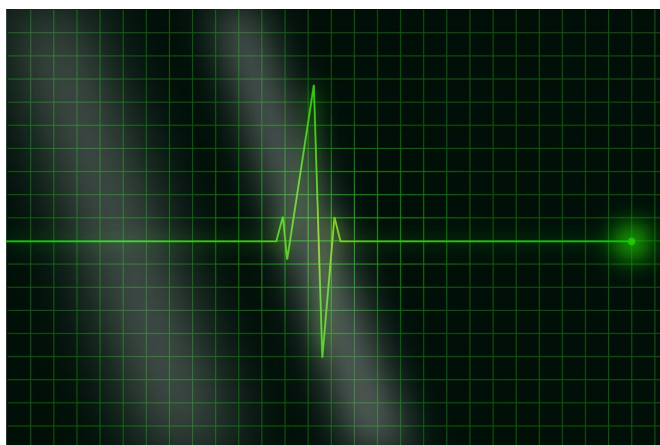


# Late-breaking studies highlight new treatment protocols for cardiogenic shock patients

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Two new studies, presented today as late-breaking clinical science at the Society for Cardiovascular Angiography & Interventions (SCAI) 2021 Scientific Sessions, provide new treatment insights for cardiogenic shock (CS) patients. A study of the SCAI cardiogenic shock stages consensus document confirms the accuracy of the shock classification. In addition, an analysis of the National Cardiogenic Shock Initiative demonstrates use of a shock protocol emphasizing early use of mechanical circulatory support may lead to improved survival for patients with CS.

CS is a rare, life-threatening condition in which the heart stops pumping enough blood to supply the vital organs of the body, and is the most common cause of death in patients with [acute myocardial infarction](#) (AMI). Despite advancements in pharmacological, mechanical and clinical interventions, the overall in-hospital mortality rate for patients with CS is 39%. For patients 75 years and older, the mortality rate increases to 55%.

## Analysis of SCAI Shock Stages Consensus Statement

A 2019 joint SCAI consensus statement proposed a new classification system describing the stages of CS, from A to E, to standardize classification of the disease. To understand if the SCAI shock stages provide mortality risk classification, an analysis of studies in PubMed was conducted examining clinical outcomes.

Researchers identified 14 manuscripts of more than 15,000 patients presenting with CS, cardiac arrest (CA) or those admitted to the cardiac intensive care unit. The studies examined seven separate definitions of the SCAI shock stages, and each study demonstrated a stepwise increase in short-term (in-hospital or 30-day) mortality with each higher SCAI shock stage.

Findings show mortality varying across shock stage (A, 1-5%; B, 0-34%; C, 11-54%; D, 24-68%; E, 42-77%) and increased with additional risk factors including the presence of CA, systemic inflammation, poor hemodynamics, worsening shock and older age.

"These findings confirm the efficacy of the SCAI shock stage classification, allowing physicians a staged approach to communicate with their colleagues and the broader heart team how sick a patient is in a very consistent way," said lead researcher Jacob Jentzer, MD, critical care specialist, Mayo Clinic. "Our analysis should enhance physician confidence in the protocol to appropriately identify high-risk and low-risk patients, ultimately helping tailor therapy based on level of shock to improve patient outcomes."

## Final Update to the National Cardiogenic Shock Initiative

The National Cardiogenic Shock Initiative, a single-arm, prospective, multi-center study assessing outcomes of early mechanical circulatory support (MCS) in acute myocardial infarction and [cardiogenic shock](#) (AMICS) in patients treated with percutaneous coronary intervention (PCI), reveals improved survival rates when using early MCS.

Between July 2016 and December 2020, 73 sites enrolled 406 patients with AMICS who were treated using a standard protocol emphasizing invasive hemodynamic monitoring and early initiation of MCS. The average patient age was 64 ( $\pm 12$  years), 24% were female and 67% were admitted in shock.

Results found that early use of MCS and invasive hemodynamics is associated with an increased patient procedural survival (99%), survival to discharge (79%), survival to 30-days (77%), and survival to 1-year (62%) for patients presenting in stage C/D shock and 98%, 49%, 46%, 32% for patients in stage E shock ( $p=0.01$ ).

"Cardiogenic [shock](#) is the leading cause of death in heart attack patients and outcomes have not improved over the past two decades," said lead author Babar Basir, DO, director of acute mechanical circulatory support at Henry Ford Health System in Detroit, MI. "With early use of MCS coupled with hemodynamic monitoring we have the potential to increase survival to 80%, and save 20,000 life per year in the United States."

Study investigators call for further research to build on their findings and connect best practices for different stages of CS. With additional data, researchers hope to provide a benchmark for clinicians to use when treating CS patients, ultimately standardizing care.

Provided by Society for Cardiovascular Angiography and Interventions

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