

# First-of-its-kind clinical trial shows improvement of outcomes in cardiogenic shock patients

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A new study is the first to establish a nationwide treatment protocol that can save lives of patients with cardiogenic shock (CS), a deadly heart attack complication. Findings show 72 percent of patients with CS survived their heart attack when treated with the shock protocol. The study was conducted by The National Cardiogenic Shock Initiative Investigators and is the second iteration of a pilot study conducted in southeast Michigan. It was presented today at the Society for Cardiovascular Angiography and Interventions (SCAI) 2019 Scientific Sessions.

Cardiogenic shock (CS) is the leading cause of death in [heart attack patients](#) . A life-threatening condition, CS occurs when the [heart](#) becomes depressed and unable to pump blood sufficiently throughout the body to support vital organs. Approximately 100,000 Americans experience this medical emergency after acute myocardial infarction (AMI), making heart attacks the most common cause of CS . With no improvements made to patient outcomes for more than two decades, there is a need to determine how new hemodynamic support devices and protocols can save patient lives.

"Cardiogenic shock patients tend to be the sickest patients we see in cardiology, and we've consistently seen a 50 percent survival rate for many years now," said lead author Babar Basir, MD, Henry Ford Health System in Detroit, MI. "As we look ahead to how we can make a

difference in these patients' lives, organizing local shock teams, using shock protocols and using advanced hemodynamic support devices such as the FDA approved Impella device, offers an opportunity to change outcomes in our sickest patients."

The prospective, single-armed study included 35 sites from across the country ranging from [community hospitals](#) to large academic centers. Between July 2016 and February 2019, all centers agreed to treat patients with [acute myocardial infarction](#) complicated by cardiogenic shock (AMICS) using a standard protocol emphasizing invasive hemodynamic monitoring and rapid initiation of mechanical circulatory support (MCS). The protocol, available publicly at [HenryFord.com/CardiogenicShock](http://HenryFord.com/CardiogenicShock) involves early identification of CS, prompt implantation of a hemodynamic support device and efforts to aggressively reduce use of inotropic agents.

Results showed the use of a shock protocol was associated with improved [patient outcomes](#). A total of 171 consecutive patients were enrolled. Patients had an average age of 63 years, 77 percent were male, and 68 percent were admitted with a heart attack and [cardiogenic shock](#). About 83 percent of patients were on vasopressors or inotropes, 20 percent had a witnessed out of hospital cardiac arrest, 29 percent had in-hospital cardiac arrest, and 10 percent were under active cardiopulmonary resuscitation. In accordance with the protocol, 74 percent of patients had MCS implanted prior to PCI. Right heart catheterization was performed in 92 percent. About 78 percent of [patients](#) presented with ST-elevation myocardial infarction with average door to support times of  $85 \pm 63$  minutes and door to balloon times of  $87 \pm 58$  minutes. As a result, [survival rates](#) were 72 percent to hospital discharge.

"What makes this protocol unique, is that we have demonstrated it can save lives anywhere it's applied. Even though hospitals have their own

local practice, we found that when physicians across the country recognize the signs of shock early and follow the steps emphasized in the protocol, it can save lives," said William O'Neill, MD, director of the Center for Structural Heart Disease at Henry Ford Health System. "With continued improvements, we believe survival rates can improve to over 80 percent which would be a remarkable advancement in care."

To further verify their findings, the authors state the importance of future studies with patient populations of more than 500. Additionally, their next step is to target strategies to increase survival rates even further.

**More information:** "Featured Clinical Research, Part I: Improved Outcomes May Be Associated with the Use of Shock Protocols: Updates from the National Cardiogenic Shock Initiative" [May 21, 2019, 11:55 a.m. - 12:05 p.m. PDT, Belmont Ballroom 4]

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