End-Organ Dysfunction Differs in Patients with Heart Failure-Related vs. Acute-Myocardial Infarction-Related Cardiogenic Shock

Anubodh S. Varshney, MD1; David D. Berg, MD, MPH2; Michael G. Palazzolo, MS3; Erin A. Bohula, MD, DPhil2; Jason N. Katz, MD, MHS3; Sean van Diepen, MD, MSc4; David A. Morrow, MD, MPH2; for the CCCTN Investigators

1Division of Cardiovascular Medicine, Stanford University, Palo Alto, CA, 2Ervin Cardiac Intensive Care Unit, TIMI Study Group, Cardiovascular Division, Brigham and Women’s Hospital and Harvard Medical School, Boston, MA, 3Division of Cardiology, Duke University School of Medicine, Durham, NC, 4Department of Critical Care Medicine and Division of Cardiology, University of Alberta, Edmonton, Alberta, Canada

BACKGROUND

- In-hospital mortality is higher in patients with acute myocardial infarction-related cardiogenic shock (AMI-CS) and de novo heart failure-related cardiogenic shock (HF-CS) compared with acute-on-chronic HF-CS.
- The patterns and prognostic relevance of end-organ dysfunction among different CS subtypes have not been well described.

METHODS

- The Critical Care Cardiology Network (CCCTN) is an investigator-initiated research network of advanced cardiac ICUs in North America.
- CS admissions from CCCTN Registry were categorized as AMI-CS or HF-CS (de novo or acute-on-chronic HF).
- Admissions were assessed for respiratory, kidney, liver, and/or neurologic dysfunction using definitions adapted from the Sequential Organ Failure Assessment (SOFA) score (Panel 1).

RESULTS

- Outcomes were assessed by burden of non-cardiac organ dysfunction: no end-organ, single system, or multi-system (2+) dysfunction.
- A total of 2,911 CS admissions from 35 CICUs were identified, most of which were for HF-CS (71%).
- A higher proportion of patients with AMI-CS and de novo HF-CS had multi-system dysfunction compared to those with acute-on-chronic HF-CS (Fig A, p<0.01).

DISCLOSURE OF FACULTY RELATIONSHIPS:

The authors have no disclosures related to the content of this abstract.

DISCLOSURE OF FACULTY RELATIONSHIPS:

The authors have no disclosures related to the content of this abstract.

CONCLUSIONS

- End-organ dysfunction burden and pattern differ among admissions for acute-on-chronic HF-CS, de novo HF-CS, and AMI-CS.
- Overall mortality is lowest in admissions for acute-on-chronic HF-CS, but mortality is similarly associated with burden of end-organ dysfunction across CS types.
- Targeted interventions guided by patterns of end-organ dysfunction among discrete shock phenotypes may improve outcomes in CS.

End-Organ Dysfunction Definitions

Respiratory: use of high flow O2, mechanical ventilation (including non-invasive), or VV-ECMO
Liver: total bilirubin ≥2 mg/dL or ALT ≥200 U/L
Kidney: serum creatinine ≥3.5 mg/dL or new dialysis
Neurologic: Glasgow Coma Score <13

Email us at CCCTN@partners.org