Implementation of a Cardiogenic Shock Protocol and Data Review Process is Associated with Improved In-Hospital Survival

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Background

Despite increasing use of mechanical circulatory support devices (MCS), cardiogenic shock (CS) mortality in hospitals remains persistently high, with worsening outcomes in later stages of CS. Delays in diagnosis and practice variation may contribute to in-hospital mortality.

Objective

To develop a CS protocol that promotes early CS recognition and rapid notification of a multi-disciplinary specialty team at 2 Providence hospital facilities (PSVMC, PPMC).

Methods

- Quality improvement initiative launched in June 2018 to identify, evaluate, and monitor outcomes for CS patients
- CS was defined by widely-accepted criteria
- Team included advanced heart failure (AHF) physicians, hospitalists, interventional cardiologists (IC), ED physicians, intensivists, cardiac surgeons, MCS coordinator, STEMI coordinator and transfer center nurses
- A report was generated in the electronic medical record (EMR) to identify patients with shock in the problem list
- CS diagnosis was confirmed by chart review by a CS RN coordinator and adjudicated by an AHF cardiologist
- Clinical data points abstracted by CS RN coordinator and shared with multi-disciplinary specialty team
- Multiple care units were educated on the CS criteria and treatment protocol

Cardiogenic Shock Collection Form

- Patient Name: Adrienne Jones, MSN, Renee Swanson, MSN, Kateri Spinelli, PhD, Josh Remick, MD, Daniel Westerdahl, MD, Jill Gelow, MD, David Hotchklin, MD, Jason Wells, MD, Tim Lewis, MD, Robert Kim, MD, Jeff Robinson, MD, Roxanna Barr, PhD, Sarah Ramelli, MS, Jacob Abraham, MD
- DOB: 1980-01-01
- MRN: 1234567890
- Name: Adrienne Jones
- Date: 06/18
- Time: 12:00
- MOA: Arrives to CVL

Cardiogenic Shock Protocol

- Providence Cardiogenic Shock Protocol
- Recognition of Cardiogenic Shock
  - Advanced Heart Failure
  - MCS
  - STEMI
  - Monitoring
  - ECG, telemetry or critical care
  - Blood pressure
  - Hemodynamic data
- Referring Provider: Providence St. Joseph Health, Portland, OR

Cardiogenic Shock Diagnosis Form

- Possible Cardiogenic Shock Diagnosis
- Referring Provider: Providence St. Joseph Health, Portland, OR

Education

- Multiple presentations at both facilities delivered by CS RN coordinator
- Discussion of protocol, CS stages, and treatment options

Conclusions

- Identification of CS patients grew from 4 patients at program start to >50 patients per month
- Volume increased by 257% from 2018 (146 cases, annualized volume based on June-Dec) to 2019 (521 total cases)
- CS in-hospital mortality rate decreased from 50% to 21% across the study period, an average of 1.0 percentage point decrease per month


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