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Category: Quality improvement (Systematic and continuous actions leading to measurable improvement in health care service and/or health status)

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

ABSTRACT BODY

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

Methods: In June 2018, we devised and implemented a CS protocol at two hospitals from one health system in Portland, OR. The CS protocol was designed to promote early CS recognition, rapid notification of a multi-disciplinary specialty team lead by a heart failure cardiologist, invasive hemodynamic evaluation, and institution of MCS as appropriate. CS was defined by widely accepted clinical and hemodynamic criteria. Patient demographics, disease severity, process metrics, and clinical outcomes were prospectively collected and reviewed monthly by a multi-disciplinary CS task force. M&Ms were conducted routinely to identify improvement opportunities. The task force continually refined data collection, implemented protocol improvements, and educated providers and clinical staff in the emergency department, critical care, intermediate care, and cardiac telemetry units. Education centered on early recognition of CS, protocol for activation, and the time-sensitivity of CS outcomes.

Results: From June 1, 2018 to October 1, 2019, identification of CS patients grew from five to 55 patients per month, with 311 total patients identified. Education initially emphasized CS identification and team activation, then expanded to definition of CS stages and hospital-specific protocols. Over 10 months, the CS mortality rate decreased by 30%. Ongoing optimization includes stratifying patients by primary discharge diagnosis, consistently documenting shock stages in the electronic medical record, and refining the transfer process from other hospitals.

Conclusions: Implementation of a CS protocol with emphasis on early recognition, hemodynamic assessment, and implementation of MCS is associated with improved survival. Multi-disciplinary education and team engagement in data review are integral to continual process improvement.

Clinical Implications: A protocolized, multi-disciplinary approach can improve the outcome of CS.