



Optimal Timing of Source Control in Sepsis?

Key Article

Reitz KM, et al. Association between time to source control in sepsis and 90-day mortality. *JAMA Surgery*. 2022; 157:817-826.

Background

- Source control is a key step in early sepsis treatment (abscess drainage, soft-tissue debridement, removal of infected hardware, etc.).
- Approximately 1/3rd of hospitalized patients with sepsis undergoes source control procedures.
- Despite the frequency of patients undergoing source control procedures, there is no consensus on how rapidly source control should be performed.
- Though current international guidelines rate source control as a “best-practice” recommendation, it is based on low-quality evidence.

Objective

- To determine the association between the timing of source control and adjusted mortality in community-acquired sepsis.

Methods

- Cohort study from 14 community and academic hospitals in an integrated health care system (Univ of Pittsburgh)
- Data derived from inpatient EHR
- Patients
 - Included
 - Adults aged 18 years of age or greater
 - Community-acquired sepsis
 - Undergoing source control procedures
 - Excluded
 - Patients who did not undergo a source control procedure
 - Patients who underwent procedures longer than 36 hours after sepsis onset
 - Patients admitted after a trauma activation
 - Patients who underwent a concurrent solid organ transplant
- Source Control
 - Defined CPT codes specific to the identification of source control procedures
 - CPT codes grouped into 6 anatomic categories
 - Gastrointestinal and abdominal
 - Hepatopancreaticobiliary
 - Thoracic
 - Urologic and gynecologic
 - Orthopedic and cranial
 - Soft tissue

- Time to source control was defined as the time from sepsis onset to the intervention start time of the first source control procedure.
- Time of sepsis onset was defined according to EHR criteria in Sepsis-3
- Time to source control was dichotomized at 6 hours to define early (< 6 hours) and late (6-36 hours) source control.
- Primary Outcome
 - 90-day postintervention mortality
- Secondary Outcomes
 - Postintervention ICU admission
 - Hospital LOS
 - In-hospital mortality
 - 365-day mortality

Results

- In total, 4962 patients underwent source control interventions
 - Median of 15.4 hours after sepsis onset
 - 1/3rd of patients had multiple source control procedures
 - Overall mortality rate was 14% at 90 days
- A total of 1315 of the 4962 patients underwent early source control
 - Mean age younger
 - SOFA score higher
 - Received ABX earlier
 - More frequently ventilated
 - More frequently on vasopressors
 - Procedures were more frequently gastrointestinal and abdominal, thoracic, or soft tissue
- Primary Analysis
 - Early source control (< 6 hours) had 29% reduced risk-adjusted odds of 90-day mortality compared with late source control (aOR 0.71; CI 0.63-0.80)
 - Early source control associated with a 24% and 34% reduced risk of in-hospital and 365-day mortality
 - Each hour of source control delay was associated with increased 90-day mortality
 - Greatest risk reduction in 90-day mortality was in gastrointestinal and abdominal and soft tissue interventions
- Additional Findings
 - Early source control was associated with greatest risk reduction in middle-aged patients (35-54 years of age)
 - Rapid time to source control more frequently observed in sicker patients and early source control was associated with a greater reduction in risk-adjusted mortality compared with patients with less organ dysfunction

Limitations

- Data was generated as a part of routine clinical care and evaluated in retrospect.
- Confounding may exist as this was observational and the data did not measure source-control specific pathology.
- Quality and completeness of source control after procedure is unknown

- Only included community-acquired sepsis

Take Home Points

- Source control within 6 hours of onset of community-acquired sepsis was associated with reduced risk-adjusted odds of 90-day mortality.
- Most notable for gastrointestinal, abdominal, and soft-tissue sources