
**STUDY HIGHLIGHTS**

Study goal:
Characterize the epidemiology, hospital course, and outcomes of patients with COVID-19 on ECMO

Study population:
1035 patients from Extracorporeal Life Support Organization (ELSO) Registry

Results:
In-hospital mortality after 90days ECMO was 37.4% (95% CI 34.4–40.4). In the ARDS (VV ECMO and ARDS) group, in-hospital mortality after ECMO was 38%. ECMO for circulatory support was associated with ↑ in-hospital mortality (HR 1.89), as was ↑ age, immunocompromised status.

**CENTRAL FIGURE**

**REVIEWER’S COMMENTS**

Strengths:
• Large patient numbers and good statistical analysis, minimizing bias.
• Counter weight for earlier studies that reported a high mortality 90% of ECMO in COVID-19.
• Results comparable to other studies in ARDS (non-COVID-19).

Limitations:
• No data for long-term outcome.
• Results are biased by the fact that only centers contributing to ELSO registry are included.
• Since this is not an RCT, no conclusion about mortality of ECMO versus conventional treatment can be made.

**STUDY HIGHLIGHTS**
- Retrospective review of 219 patients with LVADs at Yale New Haven Hospital from 2007-2019
  - 18% incidence DLI
- CAS defined as receiving antimicrobial therapy for >2 weeks after completion of treatment course for DLI
- 24 received CAS for DLI
  - Mean 56 years old
  - 50% female, 63% CKD
  - 50% *Staphylococcus aureus*
  - Mean length 486 days (range 48-2287)
- 50% successful outcomes
- 29% treatment failures
  - Relapses
  - New infection on CAS

**CENTRAL FIGURE**
- Microbiology of initial DLI for patients on CAS
- Antimicrobial agents used in initial CAS regimens

**REVIEWER’S COMMENTS**
- Patients on CAS who developed relapses were infected with Staphylococcal species
- CAS led to selection of bacteria resistant to CAS regimen

**Limitations:**
- Retrospective study design
- No control group
- No institutional protocol for initiation of CAS
- Single center study
- Small sample size

- 6 relapses on CAS
  - 1 CoNS, 2 MRSA, 2 MSSA
  - 1 *Serratia marcescens*

- 3 new infections on CAS
  - Cipro/doxy → ESBL *E. coli*
  - Doxy → *Proteus mirabilis*
  - Cefuroxime → *S. marcescens*
**Study Highlights**

**Question:** How long do patients with LVAD infections need to be treated post-transplant?

**Design:** Retrospective, Single Center.

**Inclusion:** n = 54 cases receiving antimicrobial therapy at time of transplant either for initial treatment or chronic suppression; 18 = LVAD-specific or related infections; 36 = non-LVAD infections

**Results:**
- LVAD-related infection group had ↑ rates of diabetes, hypertension, and median Charlson comorbidity index score at time of transplantation.
- Antimicrobial therapy was extended posttransplant to treat preceding proven LVAD-specific infection (9 of 13, 69.2%) with a median duration of 14 days (IQR 14–28).
- After LVAD removal, antimicrobial treatment was not continued for preceding LVAD-related infections
- **None** of the patients in the LVAD-infection group experienced **infection relapse** after discharge

**Central Figures**

Survival analysis between LVAD-infected and noninfected LVAD cases. **No significant difference in the overall 5-year posttransplant.**

**Reviewer’s Comments**

- Shorter antimicrobial treatment courses (14 days) may be considered in LVAD infections once source is removed
- More large center and multicenter studies need to be done

**Limitations:**
- Retrospective
- Decision to treat or not was based on micro data and gross inspection at the time of procedure, which can be subjective
- Prolonged antimicrobial therapy before transplant could have affected intraoperative cultures.
- Histological exam was rarely obtained, which does not align with the recommendation by ISHLT to confirm infection diagnosis
- Use of antibiotics to treat or prevent other infections could have also decreased yield or selected out resistant organisms.