THE UNIVERSITY OF CHICAGO MEDICINE
Center for Healthcare Delivery Science and Innovation

Mobilization of Patient with Inhalation Burn Injury Requiring VV ECMO: A Case Study

Conclusion Headline

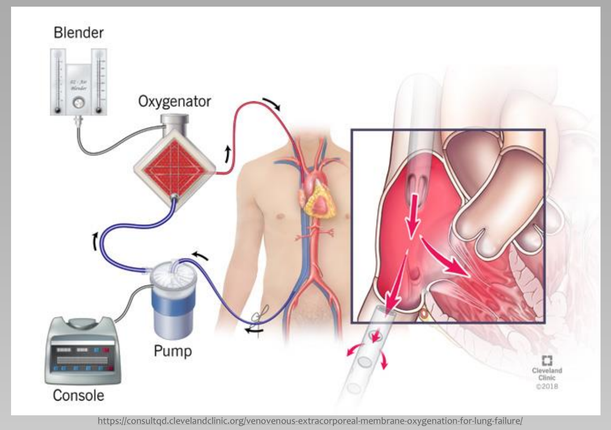
Burn patients on veno-venous extracorporeal membrane oxygenation (VV-ECMO) with femoral cannulation can safely engage in mobility to yield positive functional outcomes. However, additional research is needed.

Significance Statement

- Negative sequelae such as neuromuscular and neurocognitive deficits are widely reported in patients suffering critical illness, including patients requiring ECMO.
- There is increasing evidence supporting the safety, feasibility and efficacy of early physical and occupational therapy (PT, OT) with patients on ECMO in an effort to abate functional limitations post-discharge.
- There is limited evidence to support mobilizing burn ECMO patients .
- This case supports the safety and feasibility of mobilizing a burn patient receiving VV ECMO.

Lessons Learned

- Early mobilization of burn patients on ECMO is feasible and can ameliorate the effects of immobility.
- Burn therapists are an integral part of the inter-disciplinary team and should be trained to provide care for patients on mechanical circulatory support.
- Inter-professional communication and collaboration is imperative.



https://consultqd.clevelandclinic.org/venovenous-extracorporeal-membrane-oxygenation-for-lung-failure/

Population

Patient Description:

- 56 year old male, 16% TBSA partial and full thickness burns to face and upper extremities
- Explosion at work with inhalation injury and subsequent respiratory failure

Clinical Question

Would the patient's functional outcomes at hospital discharge have been as favorable if he had remained on bedrest throughout his 11-day ECMO run?

Data Source and Results

Hospital Course:

-Intubated on arrival
-Extubated hospital day 3
-Re-intubated hospital day 8
-VV ECMO cannulation initiated hospital day 11
-VV ECMO decannulation hospital day 22
-Hospital discharge to acute inpatient rehab on hospital day 40

Therapy Course:

-OT/PT consult received on hospital day 1
-Therapy initiated for splinting needs on hospital day 2
-Seen for functional mobility assessment on hospital day 5
-Mobility re-initiated 2 days after VV-ECMO cannulation
-Days of therapy received while on ECMO: 7 out of 11

Therapeutic Activities:

-Active range of motion exercises, bed mobility, transfers, sitting and standing balance exercises, and gait training

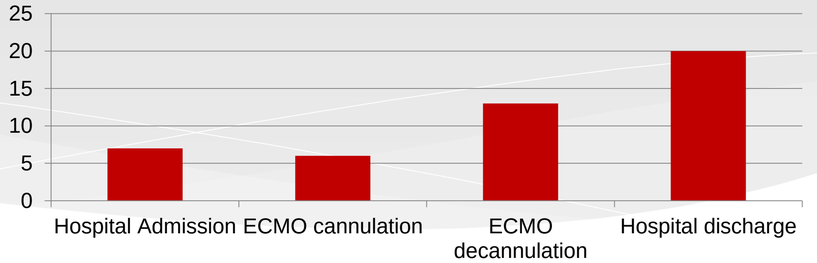
Monitoring/Safety:

-Monitored ECMO flows and vitals, secured medical devices
-No adverse events occurred throughout

Functional Outcomes:

-Progressed to ambulating 300 feet independently
-At discharge only therapy impairments were related to upper extremity burn injury

Boston AM-PAC score



Karina Berenbaum, PT, DPT; Annemarie O'Connor, MSN, APRN, FNP-BC; Megan Teele, PT; Cheryl Esbrook, OTR/L, BCRP; Jessica Fortin, PT, DPT; Tae H. Song, MD; Lawrence Gottlieb, MD, FACS