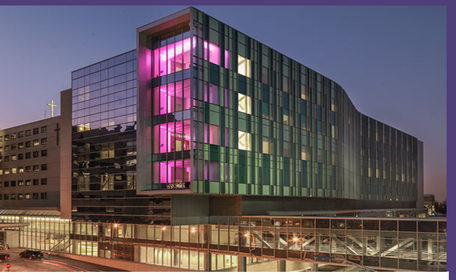

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VV ECMO for COVID-19 Associated Severe ARDS: A High Volume, Single Center Experience

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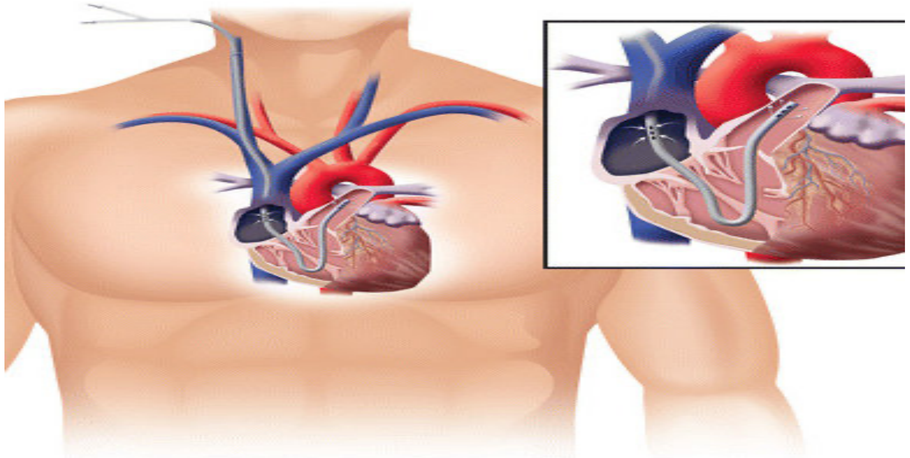
Background

- Veno-venous (VV) extracorporeal membrane oxygenation (ECMO) has historically been used as salvage therapy for severe, acute respiratory distress syndrome (ARDS).
- During the H1N1 influenza and MERS pandemics, patients treated with VV-ECMO were found to have lower mortality and better functional status at discharge.
- VV-ECMO is an option for COVID-19 adults who are refractory to conventional ventilator management with a PaO_2/FiO_2 ratio <150 on a high FiO_2 >90 percent with optimized PEEP.[1]



Methods

- This is a prospective, observational study of patients with COVID-19 associated ARDS who were initiated on VV-ECMO at Advocate Christ Medical Center (ACMC) between March 1st and October 31st, 2020.
- Patients were cannulated in the operating room under fluoroscopic guidance. Demographic, clinical data, and outcomes are reported as a descriptive analysis.

References

Fitzsimons, Michael, and Jerome Crowley. "COVID-19: Extracorporeal Membrane Oxygenation (ECMO)." *UpToDate*, 9 Dec. 2020, www.uptodate.com/home. (1)

Kazui, Toshinobu, et al. "Minimally Invasive Approach for Percutaneous CentriMag Right Ventricular Assist Device Support Using a Single PROTEKDuo Cannula." *Journal of Cardiothoracic Surgery*, vol. 11, no. 1, 2016, doi:10.1186/s13019-016-0515-y.

Results

- 40 patients were identified between March 1st - October 31st 2020
- The mean age was 46.8 years (two patients were under the age of 18). 73% were males and the mean BMI was 35.
- Ethnic Backgrounds of the patients: 20 (50%) were Hispanic, 11 (27%) were African American, 8 (20%) were Caucasian, and 1 (2.5%) was Southeast Asian.
- 38 patients were cannulated via right internal jugular vein with a ProtekDuo dual lumen catheter, while 2 patients were cannulated via right internal jugular and femoral veins.

Outcomes	Median Number of Days (n=)
ECMO Support	25 days
ICU Length of Stay	31 days
Hospital Length of Stay	42 days
Extubation to PO diet	3 days

- Final disposition is as follows: 29 (73%) out of the 40 patients survived to hospital discharge
- Of those 29 patients, 18 (45%) patients were discharged directly home, 10 (25%) patients were discharged home from acute inpatient rehabilitation, 1 (2.5%) patient was discharged to long-term acute care (LTAC).

Conclusion

- In this observational study, the overall survival rate was 73%.
- The purpose of this study was to describe outcomes of COVID-19 patients treated with VV-ECMO at a high-volume referral center.
- This abstract adds to previous literature suggesting ECMO be considered an essential tool throughout the ongoing pandemic.