Early mobility improved survival rates for COVID-19 patients receiving ECMO, study finds

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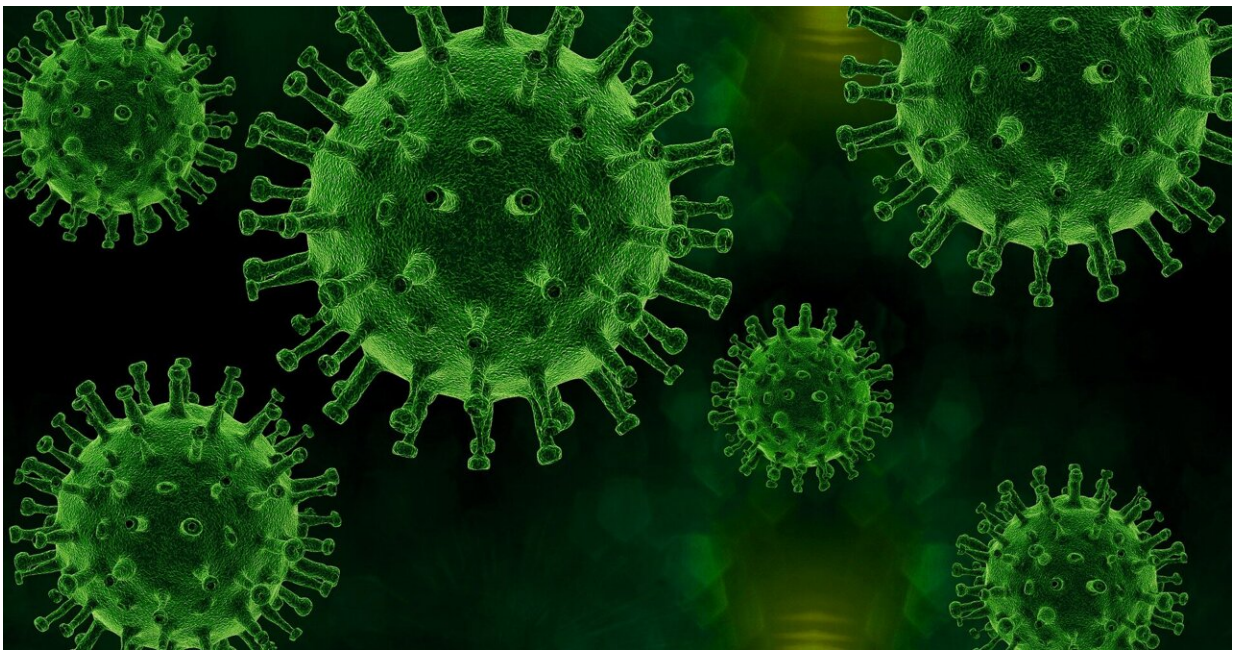

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A Texas cardiac subspecialty hospital with seven years of experience with extracorporeal membrane oxygenation (ECMO) changed its treatment paradigm during the COVID-19 pandemic, finding that progressive mobility and a more aggressive application of rehabilitation therapies contributed to significantly higher survival rates for its patients

with COVID-19 receiving ECMO.

Baylor Scott & White The Heart Hospital, Plano, Texas, has an experienced interprofessional ECMO team that has managed more than 350 cases, primarily patients with cardiac failure who needed veno-arterial ECMO. ECMO therapy uses an extracorporeal circuit to perform gas exchange in the blood, allowing providers to decrease harmful ventilator settings while permitting the patient's lungs to rest and potentially recover.

At the start of the pandemic, the team treated critically ill patients with COVID-19 who were receiving venovenous ECMO similarly to how it successfully cared for cardiac patients, by intubating and sedating them and using neuromuscular blocking agents (NMBAs). In an effort to increase survival rates, the team changed course toward an active mobility care plan.

"An Interprofessional Approach to Mobilizing Patients With COVID-19 Receiving Extracorporeal Membrane Oxygenation" details how the ECMO team implemented an interprofessional early mobility protocol for patients with acute respiratory distress syndrome (ARDS) secondary to COVID-19. The article describes patient outcomes, and details the accountabilities and implications for each discipline in implementing the protocol. The study is published in *AACN Advanced Critical Care*.

Co-author Jenelle Sheasby, MSN, RN, CCRN-CSC-CMC, CES-A, is the hospital's ECMO coordinator.

"The pandemic rapidly shifted our practice from patients with cardiac failure who require veno-arterial ECMO to those in respiratory distress requiring venovenous ECMO," she said. "When our survival rates were lower than those being reported internationally, our facility chose to undergo a complete culture change and implement an unfamiliar strategy

to improve outcomes."

During the 18-month study period, 48 patients with COVID-19 received ECMO support for respiratory failure secondary to a COVID-19 infection, beginning with the first patient who was admitted in May 2020. When the study period ended in November 2021, three patients remained on support, with indeterminant outcomes, and another three were excluded from the analysis due to inadequate medical records.

The preintervention group included 16 nonmobilized adult patients with COVID-19 who received venovenous ECMO, with strict bed rest, full sedation and paralysis, between May and December 2020. An early mobilization strategy was implemented for the postintervention group, with 26 patients from January through November 2021.

The interprofessional approach to wake and mobilize the patients during their ECMO course included earlier insertion of tracheostomies and quicker removal of isolation restrictions, followed by an immediate weaning of NMBAs and sedatives. This approach was accomplished with a modification in continuous infusion administration, use of oral or transdermal medications, and aggressive implementation of rehabilitation therapy sessions.

The new strategy was interprofessional, with physicians, advanced practice providers, ECMO specialists, nurses, pharmacists, respiratory therapists, and physical and occupational therapists each contributing uniquely to the intervention.

Comparing the two cohorts retrospectively showed a significant improvement in the survival rate of the postintervention group, from 43.8% to 73.1%. The mobilized group had fewer days of receiving paralytics, fentanyl and midazolam, but more days of dexmedetomidine, morphine and ketamine administration. More patients in the

postintervention cohort received oral or transdermal analgesics, oral anxiolytics and oral antipsychotics, and required more single-site ECMO cannula adjustments.

More information: Jenelle Sheasby et al, An Interprofessional Approach to Mobilizing Patients With COVID-19 Receiving Extracorporeal Membrane Oxygenation, *AACN Advanced Critical Care* (2022). DOI: 10.4037/aacnacc2022293