Background

- ALGH expressed an interest in offering VenoVenous (VV) Extracorporeal Membrane Oxygenation (ECMO) therapy but faced many challenges that prevented this from occurring.
- During the COVID-19 pandemic, evidence showed that conventional treatment measures such as prone, High Flow Nasal Cannula, and inhalation of nitric oxide failed however, VV ECMO therapy was proven to benefit this patient population.

Local Problem

- Globally, healthcare experienced overcrowding in the ICUs accompanied by bed shortages. Given the limited resources and support services available, in addition to the knowledge that VV ECMO improved patient outcomes, ALGH decided to develop a formal ECMO program.
- The challenge of implementing an ECMO program prior to COVID-19 was the lack of physician support and ownership of managing this patient population.
- ECMO was a scarce resource and appropriate patient selection was crucial. Criteria had to be developed to determine which patients would be most likely to survive on ECMO, especially since the trend of the COVID patients on ECMO was sustaining more than 60-day ECMO runs.

Methods

- The Advocate Intensivist Partners (AIP) joined ALGH in July 2020 and showed an interest in managing the VV ECMO population in the Medical Cardiac Intensive Care Unit (MCICU) and supported the development of a nurse-run program.
- A meeting was held with key stakeholders to approve moving forward with the plan of developing an ECMO program at ALGH.
- 10 critical care nurses who met certain criteria were selected.
- Criteria included a minimum of one-year of critical care experience, strong hemodynamic and critical thinking skills, the ability to commit to monthly and quarterly simulation labs and maintaining 12 hours of pump time every month. The nurse also had to be approved to be a part of the team by their manager, the ECMO Medical Directors and the ECMO Coordinator.
- Unfortunately, because of the COVID-19 pandemic, in-person ECMO educational offerings were not being offered by ELSO.
- An in-house educational program at LGH had to be developed and implemented while ensuring that the Extracorporeal Life Support Organization (ELSO) guidelines were followed.
- Education included a 16-hour didactic portion covering specific topics, a written exam with a passing grade of 80% or higher, simulation sessions to solidify the nurses’ knowledge and competency with the ECMO pump, circuit management, and common troubleshooting scenarios.
- Collaboration between the MCICU educator, AIP physicians, clinical perfusionists, and the Simulation center occurred to develop the program.

Results

- Today, our ECMO program has grown significantly, with approximately 40 critical care nurses trained.
- We obtained an ELSO membership, which provides us an opportunity to become more directly involved in the ECMO community. It also offers the benefit of benchmarking our data against other centers.
- We have cared for 21 patients on VV ECMO since the start of our program.
- Our ECMO survival rate is 72%, which is higher than the national average of 58%.

Discussion

Our nurses trained for ECMO are ECMO RN Specialists. This means that they manage the care of the critically ill patient, and they also manage the ECMO pump and circuit, troubleshoot emergency alarms/situations and know how to intervene appropriately.

Implications for Practice

- Even though COVID has decreased, the need for VV ECMO remains. Recently, we had 2 non-COVID patients with a diagnosis of status asthmaticus and respiratory failure/ARDS on VV ECMO for less than 7 days and both survived and are doing well.
- An ECMO Survivorship Celebration will be held in October.
- Our ECMO center was recently awarded the Silver Level Pathway to Excellence Award by ELSO.

- Our center is partnering with other local healthcare systems as an ECMO destination center.
- Next steps for our program is process improvement projects and beginning to look ahead to obtain the Gold Level Center of Excellence Award from ELSO.
- We have acquired the Califia simulator, which represents realistic hemodynamics and respiratory changes and can be used in addition to our already high-fidelity simulation sessions to simulate many scenarios which the nurses may encounter.

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