Research Days

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Large single center experience in pediatric oncology and bone marrow transplant patients on ECMO: How should we decide candidacy?

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Describe role of Submitting/Presenting Trainee in this project (limit 150 words):

In this project, my role was multifaceted. Initially I designed our RedCap data collection tool, and later participated in collection of initial data and chart review. Once data had been collected, it was compiled and sent to an outside statistician with targeted questions. Once we received the results, I assisted in interpretation of the data and I compiled it into an initial abstract with the support/ input of my mentors. This was then expanded into a poster presentation which I presented virtually at the ELSO Conference 2021.

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background: ECMO is rarely utilized in pediatric oncology and bone marrow transplant (BMT) populations due to concerns surrounding poor prognoses and high rates of complications. Patients with malignancies are often not offered ECMO as an option. There is paucity of data to determine whether a pediatric oncology or bone marrow transplant patient is an appropriate candidate for ECMO.

Methods: This is a single center retrospective cohort study on pediatric patients with primary oncologic diagnosis or history of bone marrow transplant who required VA- or VV-ECMO from 2015-2020.

Results: Twelve patients were identified with a 58% survival. Those that did not survive, died prior to decannulation. The most common underlying diagnosis was leukemia/lymphoma (n=8). Six patients had undergone BMT and one had received CAR-T therapy. Sixty seven percent of survivors were still alive at 1 year follow-up. All non-surviving patients had leukemia/lymphoma whereas only 37.5% of surviving patients had leukemia/ lymphoma. There was an age disparity in survival (median of 13.9 years for

survivors, 4.4 years for non-survivors). Hemorrhagic/thromboembolic complications, component/circuit change, blood product use and infection were not predictive of mortality.

Conclusions: This single center report offers a unique perspective as it is to our knowledge, the largest single center experience and reports on survival up to one year. Patients surviving decannulation are likely to survive to hospital discharge. Younger patients and those with leukemia/lymphoma had higher mortality. Additionally, complications on ECMO did not suggest higher mortality. Oncology and BMT pediatric patients should not be presumptively excluded from ECMO therapy.