Category :**Respiratory: mechanical ventilation**

A155 - ***Cytosorb therapy in covid-19 (ctc) patients requiring extracorporeal membrane oxygenation: a multicenter, retrospective registry***

T Song [1] ; J Hayanga [2] ; L Durham [3] ; L Garrison [4] ; A Supady [5] ; M Jaros [6] ; P Nelson [7] ; E Deliargyris [7] ; N Moazami [8]

[1]University of Chicago Medicine, Chicago, IL, United States, [2]West Virginia School of Medicine, Morgantown, WV, United States, [3]Medical College of Wisconsin, Milwaukee, WI, United States, [4]Franciscan Health Indianapolis, Indianapolis, IN, United States, [5]University of Freiburg, Freiburg, Germany, [6]Summit Analytical LLC, Denver, CO, United States, [7]CytoSorbents Corporation, Monmouth Junction, NJ, United States, [8]New York University School of Medicine, New York, NY, United States

Introduction:

CytoSorb is a cytokine adsorption device that received FDA Emergency Use Authorization (EUA) for use in critically ill COVID-19 patients. The CTC Registry was established to collect patient-level data from U.S. centers using CytoSorb under the EUA.

Methods:

Consecutive patients on ECMO treated with CytoSorb were included. Retrospective data collection included demographics, comorbidities, COVID-19 medications, inflammatory biomarkers, and details on ECMO and CytoSorb use. Study follow-up was to hospital death or discharge. Primary outcome was ICU mortality. Comparisons between survivors and non-survivors were performed to evaluate predictors of mortality. Up-to-date information from the international Extracorporeal Life Support Organization (ELSO) ECMO COVID-19 Registry was considered to help contextualize the results.

Results:

52 ECMO patients treated under EUA from April 2020 to April 2021 were enrolled from 5 U.S. centers. Baseline characteristics were comparable to the ELSO Registry except for higher rates of obesity in the CTC cohort. ICU mortality rates in the CTC cohort were 17.3% at 30 days, 26.9% at 90 days, and 30.8% overall. Gender, age, baseline SOFA, baseline D-Dimer levels, and CytoSorb use between survivors and non-survivors are shown in the Table. Regression analyses suggested a borderline association between baseline D-Dimer levels and mortality, with 32% increase in the risk of death per 1 µg/mL increase (p=0.055). CytoSorb was generally well tolerated without any unanticipated device-related adverse events reported.

Conclusion:

Combined use of ECMO and CytoSorb in critically ill COVID-19 patients was associated with mortality rates that compared favorably to international benchmarks. Elevated baseline D-Dimer levels appeared to be associated with increased risk of mortality.

Table:

Survivors (S) vs. Non-Survivors (NS)	S (n=36)	NS (n=16)	P-value
Male	67% (24/36)	63% (10/16)	0.764
Age (years)	47.4 ± 9.54	51.2 ± 7.38	0.161
SOFA score at start of CytoSorb therapy	6.3 ± 3.64	8.3 ± 4.13	0.104
Baseline D-Dimer levels (µg/mL)	2.0 ± 1.3	22.1 ± 36.7	0.056
Duration of CytoSorb therapy (hours)	79.4 ± 27.72	88.3 ± 35.11	0.326
Time to therapy after ECMO start (days)	2.3 ± 6.63	2.8 ± 4.54	0.781

Time to therapy after ICU admission (days)	6.1 ± 7.40	9.1 ± 5.60	0.168

Comparison of survivors and non-survivors in the CTC ECMO cohort