Extracorporeal Membrane Oxygenation for Covid-19-Related Severe Respiratory Failure

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Abstract:

Introduction and Aim: We sought to evaluate interim results of V-V ECMO support for COVID-19-related severe respiratory failure during the 2nd-3rd waves of the coronavirus pandemic in the Middle and East Moravia regions of the Czech Republic.

Material and Methods: A total of 23 consecutive patients (72.3% male, mean age 54.7.8±12.6 years, mean BMI 34.9±9.4 kg/m2) with critical hypoxemic and/or hypercapnic failure (mean P/F ratio 68.5±12.3 mmHg, mean pCO2 78.0±15.7 mmHg) were supported in our centre from October 2020 to February 2021. Outcome analysis was conducted and focused on 30-, 60- and 90-day survival.

Results: Prior the ECMO, all patients were prone positioned and mechanically ventilated (MV) for the mean of 2.9±2.8 days. Mean ECMO support duration reached 211.8±48.5 hours, 17 patients (73.9%) were successfully weaned off. Twelve patients (52.2%) were discharged home with good neurological outcome (CPC 1,2). A total of 11 in-hospital deaths (44.8%) were recorded, due to sepsis-related multiple organ failure (65.2%). During follow-up, 30- and 90-day survival rate was 65.2% and 52.2%, respectively. Complications that had occurred included, two device-related (circuit thrombosis), 4 systemic thromboses (1 ischemic stroke, 3 leg cannula-related vein thrombosis), and 2 severe bleedings (massive hemothorax, GI bleeding).

Conclusion: With respect to limited patients´ cohort, the outcome of the V-V ECMO support for COVID-19-related severe respiratory failure is promising, even in the scope of a low volume ECMO centre. The long-term outcome analysis including evaluation of survivors' real quality of life and pulmonary function is needed. Tight interdisciplinary cooperation between cardiac surgeon, perfusionist, intensivist and rehab therapist is vital.