Totally percutaneous veno-venous extracorporeal membrane oxygenation (ECMO) therapy for COVID 19 patients. Bridge to recovery or lung transplantation?. Experience of Centre of Extracorporeal Membrane Oxygenation

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BACKGROUND:
Multiple major health organisations recommend the use of extracorporeal membrane oxygenation (ECMO) support for COVID-19-related acute hypoxaemic respiratory failure

METHODS:
From March 2020 to February 2022 we proceded 149 veno-venous ECMO therapies. 75 patients required implantation immediately in intensive care unit in place of call by mobile ECMO team. Depend from distance of call it was used medical ambulance, rescue helicopter or medical plane. Patients with ARDS associated with SARS COV 2 infection were qualified for ECMO therapy according to the established protocol, the main points of which were the oxygenation index (PaO2 / FiO2) is less than 150 mmHg. In all cases, cannulation was performed completely percutaneously using the Seldinger method under ultrasonography navigation.

RESULTS:
In the first analyzed period (March-December 2020), 90-day mortality was 41%. 8 (7.6%) patients were discharged from the Intensive Care Unit. The remaining 3 (4.2%) were discharged home. 7 patients (6.6%) had both lung transplants. 7 patients (6.6%) required conversion to VV-A ECMO therapy due to the development of acute heart failure. In March-December 2021 period the mortality was 70%. In January-March 2022- mortality was 50%

CONCLUSIONS:
In the analyzed period of March-December 2020, the mortality was 41%. During this period, ECMO v-v therapy was a strategy as a bridge therapy to recovery. In January 2021, the increase in the invasiveness of lung involvement, and thus the increase in the mortality of patients, was associated with an increase in infections with COVID 19 mutations, including the "British" variety. As a result, the lower effect of regression of consolidation and inflammatory lesions of lung tissue indicates that ECMO therapy remains the treatment method in high-risk patients as a bridge therapy to lung transplantation.



Figure 1. COVID 19 ECMO transportation

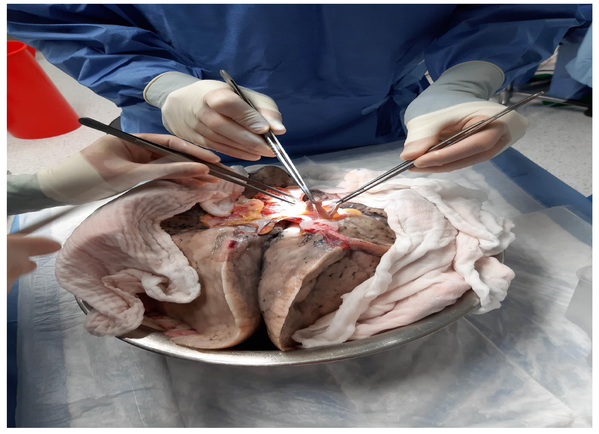


Figure 2. Double lung transplamntation



Figure 3. ECMO v-v configuration