

Category : **Respiratory: mechanical ventilation**

A51 - Procedural characteristics of veno-venous extracorporeal membrane oxygenation patients with severe acute respiratory distress syndrome

J Rilinger¹; R Book²; X Bemtgen²; M Jäckel²; V Zotzmann²; D Duerschmied²; C Bode²; DL Staudacher²; T Wengenmayer²

¹Heart Center Freiburg University, Department of Cardiology and Angiology I, Freiburg, Germany, ²Heart Center Freiburg University, Freiburg, Germany

Introduction:

Mortality remains high in patients with severe acute respiratory distress syndrome (ARDS) despite the use of veno-venous extracorporeal membrane oxygenation (VV ECMO). Understanding the differences between survivors and deceased patients is crucial for developing tomorrow's therapy.

Methods:

We report retrospective data of a single-centre registry of patients with severe ARDS requiring VV ECMO support between 10/2010 and 04/2020. Vital parameters, laboratory values and blood gas analysis as well as the level of support of ECMO therapy, ventilator settings and catecholamine therapy of the first 10 days after ECMO cannulation were analysed with regard to their association with survival.

Results:

A total of 283 patients with complete medical data could be analysed (age 53 years, 66% male). Overall ECMO weaning and hospital survival rate were 52.8% and 44.8%, respectively. Survivors showed a lower level of ECMO support after day 2 (blood flow and sweep gas flow) and day 3 (fiO₂, p<0.05, figure 1). Pulmonary compliance and tidal volume were higher in survivors after day 1. Moreover, survivors showed a lower noradrenaline dosage in the first 8 days and a lower fluid balance in all 10 days. Interestingly, positive end-expiratory pressure, driving pressure, respiratory rate, mean arterial pressure, lactate and bilirubin showed no or no clinical significant association to survival.

Conclusion:

In this analysis of the first 10 days of ECMO therapy, there were major differences in the level of ECMO support, tidal volume and pulmonary compliance as well as fluid balance and required noradrenaline dosage between survivors and non survivors.

Image :

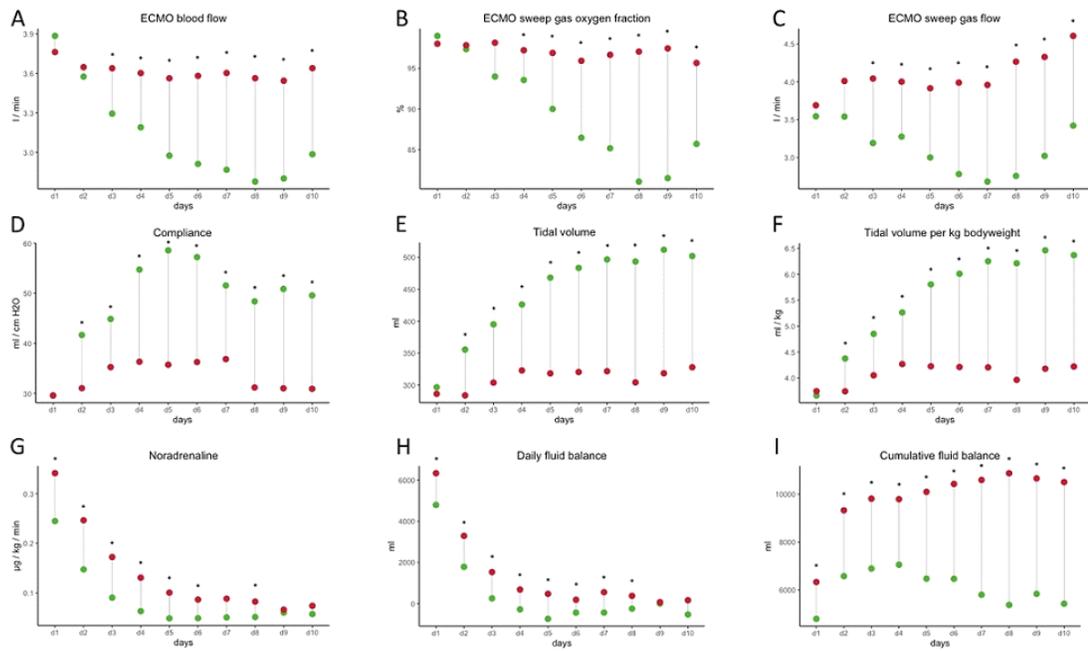


Figure 1. Parameters associated with outcome in patients with ongoing VV ECMO therapy. Survivors (green) and non survivors (red) showed significant differences ($* p < 0.05$) in the level of ECMO support (A-C), pulmonary compliance and tidal volumes (D-F) as well as circulatory support (G-I) over the first 10 days of ECMO therapy.