

7-year experience of our centre in extracorporeal membrane oxygenation support

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Introduction: Implantation of extracorporeal membrane oxygenation (ECMO) as a bridge to recovery or decision is a widely accepted treatment.¹ We present our experience using VA ECMO for hemodynamic support of patients with cardiogenic shock.

Patients and Methods: We supported 61 patients (72% males and 28% females) since 2011, with even 21 patients during the last year. The average age was 58 with 23% of pts of age ≥ 65 . The average duration of ECMO was 6 days. Median SAVE score was -10 with significantly lower score among pts treated before then after 2015 (-11 vs -8, $P=0.003$). The etiology of cardiogenic shock was acute myocardial infarction (48%), cardiomyopathy (43%) and myocarditis (9%). New-onset heart failure (HF) was an indication in 57% while acute deterioration of chronic HF was present in 43%. ECMO was implanted during resuscitation in 28%.

Results: Survival on ECMO support was 56%. Thirty-one percent (31%) were weaned from ECMO and 25% of patients continued on advanced HF therapies (8% were transplanted and 17% received LVAD). Survival at hospital discharge was 30%. Survival among pts that received ECMO during CPR was only 18%. The survival significantly improved since 2015. (46% vs 11%, $P=0.003$). Both mortality on ECMO as well as mortality at hospital discharge were significantly higher at age of ≥ 65 (62% vs 38%, $P=0.029$; 100% vs 62%, $P=0.006$). These two age groups, i.e. < 65 and ≥ 65 differed significantly only in the SAVE score with lower i.e. more unfavorable scores in older pts ($P=0.01$). Survival at hospital discharge strongly depended on renal function, with no survivors among pts who were already on or have started the dialysis on the very first day of ECMO support. Survival was higher in pts with new-onset HF than in pts with acute worsening of chronic HF, but this did not reach statistical significance (77% vs 68%, $P=0.31$). The predictors of better survival included lower serum creatinine, NT-proBNP and free hemoglobin, as well as higher, SAVE score ($P=0.026$, $P=0.05$, $P=0.019$ and $P<0.001$ respectively).

Conclusion: Although results with ECMO support in cardiogenic shock steadily improve for last 7 years it still exhibits high short-term mortality. Our observations reinforce the need to start ECMO before the occurrence of irreversible multi-organ failure and to respect patient's age and SAVE score before making such a difficult decision.

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LITERATURE

- Schmidt M, Burrell A, Roberts L, Bailey M, Sheldrake J, Rycus PT, et al. Predicting survival after ECMO for refractory cardiogenic shock: the survival after veno-arterial-ECMO (SAVE)-score. *Eur Heart J.* 2015 Sep 1;36(33):2246-56. <https://doi.org/10.1093/eurheartj/ehv194>