*Supplemental files*

**Methods**

*Materials*

Peripheral cannulation was most commonly employed (88%) through an open access of the groin. Central cannulation between ascending aorta and right atrium associated with a vent into the left atrium was performed in the remainders through median sternotomy. A modified Seldinger technique was used to safely cannulate the femoral vessels (17–21 Fr for the inflow cannula and 18–32 Fr for the drainage cannula, according to the patient’s body surface area) (Edwards Lifesciences, Inc., Irvine, CA, USA). A reperfusion catheter was introduced in the superficial femoral artery to avoid limb malperfusion (7 to 9 Fr) in all cases. ECMO support was conducted under normothermia using a magnetic centrifugal pump (Rotaflow®, Maquet Inc., Hirrlingen, Germany) and Quadrox® oxygenator (Maquet). The entire ECMO circuit was heparin-coated and after an initial 5000 UI-bolus, unfractioned heparin was given in a continuous infusion to maintain an activated clotting time between 150 and 180 s.

*Removal*

Weaning off ECMO was usually not attempted in the first 72 hours. Gradual weaning by reducing the pump speed by 10% every 12 hours was our preferred strategy. Criteria for ECMO removal included hemodynamic stability during 24 to 48 h despite reduction of pump flow from full flow to 1.0 L/min, stability of renal and liver functions, and low level of inotropic medication that could be transiently increased during explantation. All explantations were performed in the operating theatre in the presence of a consultant surgeon, even for peripheral ECMO support to allow optimal vessel repair. Heparin infusion was transiently stopped 1 hour before removal and platelet infusions were given to get a platelet count higher than 50,000 before initiation of ECMO removal. Transesophageal echocardiography was performed for assessment of loading conditions and LV contractility to adapt inotropic support. When the ECMO was being removed, inotropic agents and ventilators settings were optimized as necessary. In patients without cardiac recovery despite 7 days of support, ECMO was bridged to HTx or to long-term MCS. HTx was considered for patients younger than 66 years, without history of malignant disease over the past 5 years and without irreversible pulmonary hypertension according to preoperative pulmonary hemodynamics. Patients supported by ECMO who were eligible for HTx had a national urgent high priority for any compatible cardiac allograft in France for a 48 hour-period, renewable once. This bridge-to-transplant strategy was approved by national experts if the potential of myocardial recovery was very poor, and at the condition that kidney (creatinin clearance > 40mL/min/m²) and liver functions (bilirubin < 40 µmol/L) were stabilized under ECMO support. In the absence of available transplant or in case of temporary contraindication for HTx, patients were considered for a ventricular assist device implantation.

**Tables**

**Supplementary Table 1.** Outcomes and determinants of poor survival in patients supported by ECMO for refractory postcardiotomy cardiogenic shock: insights from previous studies.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference** | **Period** | **N** | **Age (y)** | **Site for cannulation** | **Survival at 1 month** | **BTT** | **BTB** | **Independent predictors of death** |
| Elsharkawy, 2010 | 1995-2006 | **233** | 57.5 | Peripheral 67%Central 33% | 36%  | 25  | 28 | Age, diabetes, CABG, CPB time  |
| Unosawa, 2013 | 1992-2007 | 47 | 64.4 | Peripheral 68%Central 32% | 34%  | 0 | 0 | ECMO >48 h, incomplete sternum closure |
| Rastan, 2010 | 1996-2008 | 517 | 63.5  | Peripheral 39%Central 61% | 31.3%  | 5 (3†) | 15 (12†) | Age, preoperative renal failure, lactate>4, obesity, diabetes, EuroSCORE>20% |
| Wu, 2010 | 2003-2009 | 110 | 60  | NC | 41.8% | 1 | 2† | Age, continuous renal replacement therapy, other than isolated CABG, bilirubin>6mg/dL, ECMO >110 h, LVEF<30% |
| Luo, 2009 | 2005-2008 | 31 | 50.4  | NC | 58% | 1  | 0 | Continuous renal replacement therapy |
| Loforte, Artif Org, 2014 | 2006-2012 | 118 | 61.2  | Peripheral53%Central 47% | 46.6% | 0 | 1 | Lactate>3mmol/L at 72hHigher amount of blood transfusion was observed in dead patients  |
| Ko, 2002 | 1994-2000 | 76 | 56.8  | Peripheral 81%Central 19% | 28.9% | 2 †  | 2 (1†) | Continuous renal replacement therapy |
| Liden, 2009 | 2000-2007 | 33 | 52.4 | Peripheral 94%Central 6% | 45% | 2 | 2 | NC |
| Combes, 2008 | 2003-2006 | 16 | 46 | Peripheral 74%Central 26% | 50% | NC | NC | Female sex, ECMO under CPR, prothrombin activity <50%, urine output <500mL/24h |
| Biocina B, 2014 | 2009-2014 | 39 | 58 | Peripheral 61%Central 39% | 31% | 6 | 0 | NC  |

NC, data not communicated; BTT, bridge to transplant; BTB, bridge to bridge; LVEF, left ventricular ejection fraction; CABG, coronary artery bypass grafting; CPR, cardiopulmonary resuscitation; † , dead patients.