

Spontaneous breathing during ECMO in acute respiratory failure

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Online supplementary material – Additional Methods

The extracorporeal respiratory support was performed with a veno-venous bypass. The extracorporeal system consisted of the Maquet Permanent Life Support Set (“Bioline coating”® Maquet BE-PLS 2050 or BE-HLS 7050, with Quadrox oxygenator and Rotaflow RF 32 pump) (Maquet GmbH & Co, Rastatt, Germany). The maximum sweep gas flows allowed were 12 L/min for the PLS system and 15 L/min for the HLS system, according to the manufacturer's security specification. Peripheral cannulation of the two common femoral veins was mainly performed percutaneously with the Seldinger technique. In this set the drainage cannula is positioned in the inferior vena cava with the tip at the level of L1-L2, in

order to collect the blood contribution of the renal veins which correspond to approximately 25% of the cardiac output. The reimmission cannula should be placed in the inferior vena cava at the level of T10-T11, just out of the right atrium. The drainage cannula must be far enough away from the reimmission cannula to minimize recirculation, that generally is around 10-15%. The entire procedure is performed under fluoroscopic vision. In this condition the drainage flow is far from the atrial port of the SG catheter and cannot influence CO measurements. All patients received a systemic anticoagulation by intravenous administration of heparin with a target partial thromboplastin time (PTT) ratio between 1.5 and 1.8.