Supplementary material:

Methods

Cardiogenic shock management

Peripheral veno-arterial ECMO (ECMO) consisted of polyvinyl chloride tubing with a membrane oxygenator (Sorin Group, France), a centrifugal pump (Stockert; Sorin Group), and percutaneous or surgically inserted femoral cannulae (Edwards Life-Sciences, France), and was used to provide blood flow up to 6 L/min. A long (21–23 Fr) multistage cannula was inserted in the femoral vein with its tip in the right atrium and a short (18–21 Fr) catheter was placed in the femoral artery with the tip in the common iliac artery. A 7 F cannula could be inserted distally into the femoral artery to prevent lower limb ischemia.

The Impella devices (Abiomed Europe, Aochen, Germany) are catheter-mounted micro-axial rotary blood pump. It provides LV assistance, expelling aspirated blood from the LV into the ascending aorta. The Impella "2.5" and "CP" are inserted percutaneously through femoral artery and can generate up to 2.5 L/min and 3.5 L/min respectively. Impella "5.0" requires surgical cut down of femoral or axillary artery and provides up to 5 L/min.

For both devices, unfractionated heparin was administrated to maintain an activated partial thromboplastin time between 1.5 and 2 times the normal value.

The TCS weaning process followed a stepwise decrease of the pump speed with echocardiography, clinical and biological monitoring. Echocardiography consisted in measurement of aortic VTI, E wave of mitral flow and LVEF. Clinical evaluation checked occurrence of shock signs (hypotension, tachycardia, oliguria), and biological monitoring consisted mainly in SvcO2 (>65%). Pump speed was decreased by 10% (or one level of P level with Impella) every 2-3 hours, provided monitoring indices are good. When ECMO flow reduction reaches 1.5 L/min, ECMO was stopped for 10 min. If the stop test is successful, then ECMO was explanted. For Impella, the device was explanted once P1 was reached with good monitoring parameters.