Cardiocirculatory arrest during different types of interventions in the catheterization laboratory (cath-lab) requires mechanical cardiopulmonary resuscitation (CPR) to restore spontaneous circulation. However, mechanical chest compression leads to interruption of the procedure and can severely compromise the success of the percutaneous coronary intervention (PCI) or transcatheter aortic valve implantation (TAVI). Alternatives to mechanical chest compression are rare and mostly uncommon. The use of extracorporeal assistance for cardiopulmonary resuscitation (E-CPR) can be life-saving, but, up to now, it is not commonly and rapidly available in hospitals with cardiac-catheter laboratories but without cardiac-surgery departments. Here, we report our early experiences in using miniaturized extracorporeal membrane oxygenation (ECMO) systems for E-CPR in the cath-lab. We characterize the emergency uses and the bridging function of these simplified ECMO devices. Patients who developed cardiocirculatory arrest during PCI and TAVI procedures were treated with E-CPR using percutaneous veno-arterial extracorporeal life-support. To provide extracorporeal life-support, we used two types of miniaturized ECMO systems that can act independently from wall their connection points for power and oxygen supply and are...
suitable for use in the cath-lab. Between 2006 and 2011, E-CPR was used in 10 PCI and 4 TAVI patients. The mean age was 73.6 ± 8.8 years. In all patients, E-CPR could be established using percutaneous veno-arterial vessel access. On extracorporeal assistance, the return of beating heart circulation could be rapidly re-established in all patients. In the PCI group, the procedure was successfully completed in all patients while on ECMO. Two patients in the TAVI group were bridged on ECMO to surgical aortic valve replacement. In the clinical follow-up, seven patients (50%) survived to hospital discharge. Miniaturized ECMO systems can be safe and highly effective in restoring circulation and gas exchange in patients with cardiocirculatory failure in the cath-lab. Additionally, the PCI and TAVI procedures can be finished successfully on ECMO, otherwise the patients can be bridged to cardiac surgery. Especially for patients in need of cardiac surgery, patient transfer to extracorporeal assistance can be more easily processed.

Zeitschriftentitel / Abkürzung:
Eur J Cardiothorac Surg

Jahr: 2012
Band: 42
Heft / Issue: 5
Seiten: 858-63
Sprache: eng
Print-ISSN: 1010-7940
TUM Einrichtung: Klinik für Herz- und Kreislauferkrankungen

Occurences: Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Lehr- und Forschungskooperationen mit den Kliniken und Instituten am Deutschen Herzzentrum > Klinik für Herz- und Kreislauferkrankungen im Erwachsenenalter (Prof. Schunkert) > 2012

Entries: