Cardiovascular: circulatory shock (general)

A573 - Cardiac tamponade complicating extracorporeal membrane oxygenation: a single center experience.

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Introduction:
Although cardiac tamponade (CT) complicating extracorporeal membrane oxygenation (ECMO) support is seldom reported, risk factors such as vascular cannulation, systemic anticoagulation and recent heart surgery are frequently present. The goal of this study is to assess the prevalence, diagnostic challenges, therapeutic and outcome implications of CT complicating ECMO.

Methods:
Retrospective analysis of the Centro Hospitalar Universitário São João ECMO Referral Center (Porto, Portugal) database (10 year period). Of the 466 ECMO cases, CT complicating ECMO support occurred in 5 patients (1.07%): 3 veno-venous (VV) and 2 veno-arterial (VA).

Results:
Of the 5 patients, 2 were women and 3 men, with a mean age of 56.4 years. ECMO support was performed during 26.6±22.3 days: 3 for refractory respiratory failure (1 community-acquired pneumonia, 1 pneumocystosis and 1 status asthmaticus), and in 2 for severe cardiogenic shock (1 arrhythmic storm and 1 acute myocardial infarction). CT occurred after 19.6±24.6 days of ECMO support. CT was suspected during VA-ECMO due to sudden hemodynamic deterioration with decreased pulse pressure. In VV-ECMO, CT was suspected due to circulatory collapse, with cardiopulmonary arrest in 2 patients. A large pericardial effusion with collapsed right chambers by transthoracic echocardiography established the diagnosis, in all cases. Patients with VV-ECMO and cardiopulmonary arrest required ECMO-assisted cardiopulmonary resuscitation (E-CPR). Emergent surgical drainage of hemopericardium was required in all cases, with cardiac perforation repair in 2 cases. All patients survived to ICU (42.6±25.6 days) and hospital (55.6±28.9 days) discharge without significant complications.

Conclusion:
CT is a rare but life-threatening complication during both VV- and VA-ECMO. A high index of suspicion is needed and bedside transthoracic echocardiography plays a major role for timely diagnosis and treatment. Excellent prognosis is possible with E-CPR and emergent surgical drainage and repair.