

How to Manage Major Complications of ECMO

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So many complications have been reported (such as LV distension, bleeding, thrombosis, nosocomial infection, vascular injury, low leg ischemia and so on) during ECMO running.

A particular problem associated with VA ECMO is the LV distention. An evidence of pulmonary edema on the chest radiograph or edema fluid frothing up the endotracheal tube can be the first manifestation of this problem. In patient with peripheral VA ECMO, despite adequate left ventricular unloading, there is still returning blood flow to the left atrium, principally due to the bronchial circulation. The increase in wall stress associated with LV distention not only increases myocardial energy consumption resulting in ischemia but also reduces the likelihood of ventricular recovery. A surgical or percutaneous LV vent insertion must be performed in these cases.

ECMO patients are at increased risk of nosocomial infection (bloodstream infections, ventilator-associated pneumonia) when compared with other patients in the surgical ICU setting. Usual clinical signs and symptoms associated with nosocomial diagnosis difficult. In particular, fever may be absent due to servo-control of body temperature by the heat exchanger. Broad-spectrum empiric antimicrobial therapy should be instituted early until the results of microbiological cultures become known.

Although the reported incidence of intracranial hemorrhage varies, these cause the fatal result. A careful management of anticoagulation with a prompt correction of thrombocytopenia and prevention of renal failure seems to be the factor that can reduce the incidence of this fatal compliance, while the duration of ECMO support has not been shown as an independent risk factors.

Most of these complications can result in life-threatening conditions able to change the patients' outcome. For this reason, a correct prevention and an early recognition of symptoms and signs can help to reduce the incidence of adverse events.