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ECMO a forgotten method or a new hype?

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Abstract

ECMO: extracorporeal membrane oxygenation has been developing in parallel with cardiopulmonary bypass and until recently remained a method used especially for neonates and children. There are two different ways in which this method can be used in adult patients with severe but potentially reversible respiratory or cardiac failure that does not respond to conventional management: Veno-venous and veno-arterial; with the main difference being that while both can render hypoxemic support, only veno-arterial ECMO can provide hemodynamic assistance.

In neonates it has been a well described method for cases such as meconium aspiration and diaphragmatic hernia when respiratory failure cannot be managed with traditional methods. In pediatric population it has also been used as well in cases of cardiac failure after cardiac resuscitation as well as a temporizing measure in the peri-operative period, before further surgical plans are being considered.

If in the early 80's the use of ECMO has been fairly unsuccessful with very poor outcome, therefore for a long while only few centers had positive results and again mainly in children.

ECMO regained some of its popularity after the Cesar trial was published in the UK, and significantly more after the H1N1 outbreak in Australia and New Zealand showed that using ECMO in selected patients with respiratory failure (ARDS) that is unresponsive to actual treatment modalities will decrease the hospital mortality significantly towards 23.7 vs. 52.5% .

Now, more institutions are developing a system of patients' transfer towards an ECMO referral center. Future applications for ECMO use are as a bridge to lung transplantation, after cardiac resuscitation, for CO2 elimination and even as a pump-less mode.

Biography

Dr. Loretta Grecu completed her Anesthesia residency at Yale University School of Medicine, followed by a fellowship in Cardiac Anesthesia as well as a second fellowship in Critical Care Medicine, both at Harvard School of Medicine.

Dr. Grecu has been practicing both Anesthesia and Critical Care since 2002, initially at Massachusetts General Hospital and since 2008 at Yale University School of Medicine.

Dr. Grecu is an accomplished physician as well as an educator and a researcher with more than 24 published papers and book chapters, and sits on the editorial board of the Journal of Anesthesia and Resuscitation