

Significant persistent pulmonary hypertension is a risk factor for the failure of venoarterial extracorporeal membrane oxygenations after pulmonary thromboendarterectomy

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[Abstract]:

Objective: The objectives were to describe the experience with venoarterial extracorporeal membrane oxygenation (VA-ECMO) support for reperfusion pulmonary edema (RPE) or persistent pulmonary hypertension (PPH) after pulmonary thromboendarterectomy (PTE) at our institution, and to explore the ways to improve the outcomes.

Methods: We retrospectively reviewed our experience with VA-ECMO from January 2007 to October 2013 in 10 patients (ECMO group, mean age 48±13.2 years) presenting with severe RPE or PPH after PTE. This subset of patients comprised 6.41% of our 156 PTE patients, the other 146 PTE patients comprised non-ECMO group.

Results: There were five early deaths in the ECMO group, and no early death in the non-ECMO group; overall in-hospital mortality was 50.0% for the ECMO group versus 0% for the non-ECMO group. The mean time of VA-ECMO support was 124.4±46.9 hours. In the ECMO group, the 5 survivors were all having RPE as ECMO initiating etiology, whereas the 5 non-survivors were all having PPH as ECMO initiating etiology. Survival of patients with RPE as ECMO initiating etiology was higher than those with PPH (5 /5 vs. 0 /5, Fisher exact test, $P=0.008$). Multiple logistic regressions identified significant PPH as a risk factor for the failure of VA-ECMO after PTE.

Conclusions: VA-ECMO is an acceptable technique for the treatment of RPE or PPH after PTE, and the survival after VA-ECMO support in patients with RPE is higher than those with PPH. Significant persistent pulmonary hypertension is a risk factor for the failure of VA-ECMO after pulmonary thromboendarterectomy.

Key word: chronic thromboembolic pulmonary hypertension (CTEPH), pulmonary thromboendarterectomy (PTE), Reperfusion pulmonary edema (RPE), pulmonary hypertension, extracorporeal membrane oxygenation (ECMO)

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