

## Complications related to veno-arterial extracorporeal membrane oxygenation in patients with acute myocardial infarction: VA-ECMO complications in AMI

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### Abstract

Among various mechanical support devices, veno-arterial extracorporeal membrane oxygenation (V-A ECMO) is the last resort for acute myocardial infarction (AMI) patients complicated with refractory cardiogenic shock or cardiac arrest. The purpose of this study was to investigate the V-A ECMO-related complications in AMI patients who underwent percutaneous coronary intervention (PCI), and to find the association between complications and in-hospital death in that population.

We retrospectively included 101 AMI patients who received V-A ECMO and underwent PCI to the culprit lesion, and divided them into the survivor group (n=43) and the in-hospital death group (n=58). We compared the clinical characteristics and outcomes including complications between the 2 groups, and performed multivariate logistic regression analysis to find factors associated with in-hospital death and major bleeding.

The incidence of major bleeding including V-A ECMO site bleeding and intracranial hemorrhage was higher in the in-hospital death group (34.5%) than in the survivor group (7%) (p=0.001). Multivariate logistic regression analysis revealed that final thrombolysis in myocardial infarction (TIMI) flow grade  $\leq 2$  (OR 4.453, 95% CI 1.427-13.894, p=0.010) and major bleeding (OR 4.986, 95% CI 1.277-19.466, p=0.021) were significantly associated with in-hospital death. Out-of-hospital cardiac arrest (OHCA) was significantly associated with major bleeding (OR 3.881, 95% CI 1.358-11.089, p=0.011). In AMI patients who received V-A ECMO and underwent PCI, final TIMI flow grade  $\leq 2$  and major bleeding were associated with in-hospital death. OHCA was closely associated with major bleeding.

### Biography

Rotational atherectomy (RA) is considered to be the last resort for a severely calcified coronary artery lesion. Severe complications such as vessel perforation or burr entrapment is closely associated with forceful burr manipulation during RA. The instructions for use of Rotablator (Boston Scientific, Marlborough, MA, USA) prohibit forceful burr manipulation when rotational resistance occurs. Nevertheless, RA operators

tend to forcefully manipulate the burr if it cannot cross the lesion, because there has been no established strategy for an uncrossable lesion. We present a case with a severely calcified coronary lesion, which was uncrossable by a burr 1.5 mm with RotaWire Floppy (Boston Scientific). We intentionally switched 2 burrs (1.5-mm and 1.25-mm) and 2 RotaWires (Floppy and Extra-support) to cross the lesion

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