Clinical Significance of Residual Ischemia in AMI Complicated by Cardiogenic Shock Undergoing VAECMO

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Background/Aims: Although culprit-only revascularization during the index procedure has been recommended in patients with acute myocardial infarction (AMI) complicated by cardiogenic shock (CS), the reduction of residual ischemia is also emphasized to improve clinical outcomes. However, few data are available about the significance of residual ischemia in patients undergoing mechanical circulatory supports.

Methods: AMI patients with multivessel disease who underwent VA-ECMO due to refractory CS were pooled from the RESCUE and SMC-ECMO registries. The included patients were classified into three groups according to residual ischemia evaluated using the residual SYNTAX score (rSS): rSS=0, 08. The primary outcome was 1-year all-cause death.

Results: A total of 408 patients were classified into the rSS=0 (N=100, 24.5%), 08 (N=172, 42.2%) groups. The cumulative incidence of the primary outcome differed significantly according to rSS (33.9% vs. 55.4% vs. 66.1% for rSS=0, 08, respectively, overall P<0.001). In a multivariable model, rSS was independently associated with the risk of 1-year all-cause death (HRadj 1.03, 95% CI 1.01−1.05, P=0.003). Conversely, the baseline SYNTAX score was not associated with the risk of the primary outcome. Furthermore, when patients were stratified by rSS, the primary outcome did not differ significantly between the high and low delta SYNTAX score groups

Conclusions: In AMI patients with refractory CS who underwent VA-ECMO, residual ischemia was associated with an increased risk of 1-year mortality. Therefore, revascularization strategies to minimize residual ischemia should be considered in advanced CS, particularly in cases requiring VA-ECMO.

Figure 1. Cumulative Incidence According to the Baseline and Residual SYNTAX Scores