Investigator versus Core Lab Evaluation of Coronary flow and Related Mortality in the CULPRIT-SHOCK trial

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Abstract

Background In the CULPRIT-SHOCK trial, an independent angiographic core laboratory (CL) reviewed the coronary angiograms of the participants admitted with acute myocardial infarction complicated by cardiogenic shock.

Purpose To assess the concordance between CL and site investigator (SI) evaluations of the culprit artery TIMI flow grade (TFG), and their respective prognostic values.

Methods CL adjudicators blindly evaluated pre- and post-PCI TFG of the culprit lesion. The concordance with SI was determined by Cohen’s Kappa coefficient. A multivariate analysis was used to evaluate the factors of discordance and the association of each evaluation with 30-day and 1-year mortality.

Results In total, 663 (96.8%) patients were eligible for this analysis. Among the 214 patients with pre-PCI TFG 3 adjudicated by CL, SI under-graded the coronary flow to TFG 0-1-2 in 121 (56.5%). Among the 139 patients with post-PCI TFG 0-1-2 as adjudicated by CL, SI over-graded the results to TFG 3 in 79 (56.8%). Overall, pre- and post-PCI coefficient of agreements were κ=0.44, 95%CI [0.36; 0.51] and κ=0.44, 95%CI [0.35; 0.53], respectively (figure 1). Mechanical circulatory support and culprit left main were factors of discordance of post-PCI TFG (figure 2). Post-PCI TFG 0-1-2 was associated with 30-day mortality regardless of the evaluation method (SI or CL), and with 1-year mortality only when evaluated by SI (figure 3).

Conclusion In cardiogenic shock patients undergoing PCI, the level of agreement between CL and SI is moderate. SI frequently overestimates pre-PCI coronary slow flow and procedural success. However, both evaluations predict 30-day mortality, while only SI grading is associated with 1-year mortality.

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