



# Reply: Prediction of the Left Ventricular Functional Outcome by Myocardial Extracellular Volume Fraction Measured Using Magnetic Resonance Imaging; Methodological Issue

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Dear Editor,

Thank you for your comments (1). According to your comments and those mentioned by Moons et al. (2), performing multivariable prognostic research and establishing clinical prediction models is a complex process that requires careful statistical analyses and sound clinical judgement. Our study was based on a hypothesis proposed by our team, that is, myocardial extracellular volume fraction (ECV) may be used as an indicator of functional outcome after revascularization of coronary total

occlusion (CTO). Therefore, the study aimed at investigating whether a single variable (e.g., ECV) can be used to predict prognosis rather than predicting outcomes from multiple variables (3). The area under the curve of receiver operator characteristic curve analysis, the most common discrimination measure, confirmed that the discriminating performance of ECV was better than that of other markers. As for the candidate predictors, imaging predictors require subjective interpretation. Therefore, there is a risk of studying the predictive ability of the reviewer rather than that of the predictors (2). To avoid this issue, we assessed the intra- and inter-observer reproducibility of imaging markers. We also performed regression analysis with a backward elimination approach and collinearity diagnostics to evaluate the effect of different variables on each other. I agree that it would be more convincing if we validated the performance of ECV in another cohort (4), or at least in the same cohort, using the bootstrap resampling technique (5, 6). However, due to the small sample size, we have not yet performed the validation process. Further studies recruiting more CTO patients to validate the transportability and generalizability of the ECV role are warranted.

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