The Predictive Value of the Combined Systolic-Diastolic Index for Atrial Fibrillation After Coronary Artery Bypass Surgery

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Abstract

Objective: Atrial fibrillation (AF) after coronary artery bypass grafting (CABG) is a factor that causes an increase in mortality and morbidity. Therefore, predicting post-CABG AF development is important for treatment management. In this study, we investigated the value of the ratio E/(Ea × Sa) as a combined systolic-diastolic index in predicting post-CABG AF development. Methods: This prospective study included 102 patients who underwent only isolated coronary bypass. Preoperative demographic features, biochemical and hematological parameters, and the electrocardiographic data of all patients were recorded. The E/(Ea × Sa) indices were calculated from the echocardiographic measurements. Those who retained their postoperative sinus rhythm were defined as group 1, and those who developed AF were defined as group 2. Results: Group 2 had significantly higher lateral (group 1: 1.14 ± 0.61 vs. group 2: 1.47 ± 0.87; p = 0.02), medial (group 1: 1.61 ± 0.70 vs. group 2: 1.99 ± 0.91; p = 0.02), and mean (group 1: 1.30 ± 0.58 vs. group 2: 1.62 ± 0.74; p = 0.001) E/(Ea×Sa) indices than group 1. In the univariate analysis, age, CHA2DS2-VASc score, sPAP, and mean E/(EaxSa) index were found to be significant predictors of post-CABG AF development. However, only the mean E/(EaxSa) index was found to be a significant predictor of post-CABG AF development in the multivariate analysis (OR: 2.31 95% CI 1.02–5.24; p = 0.04). Conclusions: The combined systolic-diastolic index predicted the development of post-CABG AF.

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