# The prognostic value of cardiac troponin-I decline rate in ST elevation myocardial infarction

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Background: In patients with ST elevation myocardial infarction (STEMI), elevated levels of cardiac troponin concentration were associated with an increased risk of cardiac death or re-infarction. However, there have been no studies done on the relationship between a troponin decline rate and prognosis in STEMI. The goal of this study was to investigate the association between the troponin-I decline rate and clinical outcomes in STEMI patients who underwent percutaneous coronary intervention (PCI). **Methods:** We retrospectively reviewed a cohort of 350 consecutively treated patients from the Dong-A University Hospital, who underwent PCI for STEMI between December 2008 and 2013. In this study, a decline rate was defined as a percentage from difference the peak level and the lowest level during first 3 days after PCI. The patients were analyzed in two groups according to decline rate in troponin-I. The primary end point was a cardiac death. **Results:** The mean age of the patients was 62.6 years and 263 (74.9%) patients were male. Among 350 patients, 171 subjects were in the fast decline and 179 patients were in the slow decline rate group. The event-free survival rate estimated by Kaplan-Meier analysis was longer in the fast decline rate group ($p=0.04$) (Figure). **Conclusions:** The results of our study allow us to conclude that worse prognosis may be related to the slow fall of troponin-I value. Therefore, physician might need to more attention to patients with slow decline rate of troponin-I than rapid decline following PCI for STEMI.
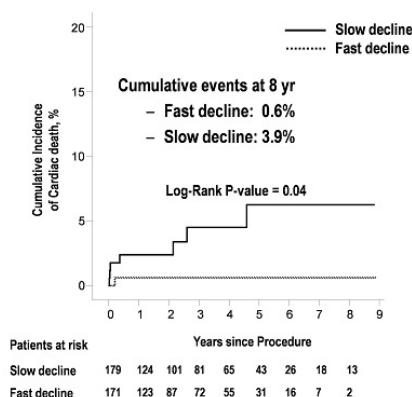
Comparison of ATRIA, CHADS2, R2CHADS2 and CHA2DS2-VASc scores in Atrial Fibrillati on

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Background: The Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) score was recently validated for stroke risk stratification in patients with atrial fibrillation (AF). This study compared predictive ability of the ATRIA, CHA2DS2-VASc, CHADS2 and R2CHADS2 scores and their implications for anticoagulation. **Methods:** Patients with non-valvular AF not prescribed oral anticoagulants (OACs) were included from 506,806 adults in the National Health Insurance Service-National Sample Cohort. The C statistics and net reclassification index (NRI) were calculated. **Results:** During 14,430 person-years of follow-up, we observed 188 ischemic strokes. The C statistics for the ATRIA score was 0.77 (95% confidence interval[CI]:0.74 to 0.80), significantly better than the CHA2DS2-VASc of 0.74 (95% CI:0.70 to 0.77), the CHADS2 of 0.74 (95% CI:0.71 to 0.78), and the R2CHADS2 of 0.74 (95% CI:0.70 to 0.78). The ATRIA score also improved the NRI by 34% compared with the CHA2DS2-VASc score, 17% compared with the CHADS2 score, and 27% compared with the R2CHADS2 score. Patients with an ATRIA score of 0 to 5 were substratified as low, moderate, and high-risk on the basis of CHA2DS2-VASc score, and annual stroke rates ranged from 0.13% to 0.56%. **Conclusions:** The ATRIA score performed best in the Korean national cohort and more accurately identified low risk patients than the CHA2DS2-VASc score. Reclassification of stroke risk based on the ATRIA score could diminish anticoagulant overuse in low stroke risk AF patients.

Table. Comparison of the predictive ability of the risk stratification schemes for the detection of ischemic stroke using C-statistics, NRI indexes

Risk Stratification Scheme	ROC curve analysis			NRI, % for ATRIA
	C-statistic	95% CI	p Value (versus ATRIA)	
ATRIA	0.77	0.74 to 0.80		
CHA_2DS_2-VASc	0.74	0.70 to 0.77	< 0.01	33.9
$CHADS_2$	0.74	0.71 to 0.78	0.01	17.0
R_2CHADS_2	0.74	0.70 to 0.78	< 0.01	6.9

The *p*-values refer to the Delong test for differences in ROC prediction.