

## ■ Sat-156 ■

## The clinical impact of dynamic morphology of T-wave inversion after PCI in patients with STEMI

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**Background/Aims:** T-wave inversion, which develops shortly after primary percutaneous coronary intervention (PCI) in patients with ST-segment elevation myocardial infarction (STEMI), is known to be related with reperfusion or myocardial viability. However, minimal information is available about clinical outcomes of patients with STEMI according to the dynamic morphological change of T-wave inversion. **Methods:** We categorized patients into three groups according to T-wave morphology after primary PCI: no newly developed T-wave inversion group, newly developed T-wave inversion but disappeared within 6 months (recovered T-wave) group, and newly developed T-wave inversion and persistent over 6 months (persistent T-wave) group. Newly developed T-wave inversion was defined as new onset of T-wave inversion within 48 hours after primary PCI. The primary endpoint was major adverse cardiac and cerebrovascular events (MACCE) including cardiac death, myocardial infarction, target vessel revascularization, stroke, and re-hospitalization for heart failure. **Results:** A total of 299 patients were analyzed and followed up for a mean of 25 months. Among them, 70 had no newly developed T-wave inversion, 158 had recovered T-wave inversion, and 71 had persistent T-wave inversion. The cumulative MACCE rate was significantly lower in patients with recovered T-wave than in those without new T-wave inversion and persistent T-wave inversion (10.1% vs. 21.4% vs. 18.3%, respectively,  $p=0.04$ ). In multivariate Cox regression analysis, recovered T-wave inversion was an independent prognostic factor for MACCE compared with no or persistent T-wave inversion (hazard ratio 0.51, 95% confidence interval 0.26-0.97,  $p=0.04$ ). **Conclusions:** Newly developed T-wave inversion that disappears within 6 months was associated with a favorable long-term outcome compared with no newly developed T-wave inversion or persistent T-wave inversion.

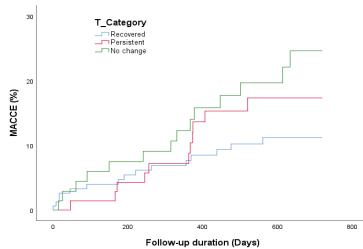


Table 1. Baseline characteristics according to T-wave groups

	No T-wave <sup>a</sup> (n=70)	Recovered T-wave <sup>a</sup> (n=158)	Persistent T-wave <sup>a</sup> (n=71)	p-value <sup>b</sup>
Age (years) <sup>c</sup>	60±14	59±14	62±13	0.46
Male <sup>c</sup>	41 (58.6%)	101 (63.9%)	38 (53.5%)	0.43
Hypertension <sup>c</sup>	39 (55.7%)	87 (54.4%)	34 (47.9%)	0.74
Diabetes <sup>c</sup>	18 (25.7%)	34 (21.5%)	14 (19.7%)	0.58
Lipid-lowering <sup>c</sup>	8 (11.4%)	17 (10.8%)	7 (9.9%)	0.61
Previous MI <sup>c</sup>	4 (5.7%)	4 (2.5%)	3 (4.2%)	0.48
Previous stroke <sup>c</sup>	1 (1.4%)	9 (5.7%)	4 (5.6%)	0.34
Current smoker <sup>c</sup>	38 (54.3%)	87 (54.4%)	31 (43.6%)	0.24
Hemoglobin, mg/dL <sup>c</sup>	14.8±1.6	14.7±1.7	14.5±1.6	0.42
WBC, $\mu$ L <sup>c</sup>	12470±4000	11013±3504	11785±3774	0.03
Hb-CRP, mg/dL <sup>c</sup>	1.16±1.17	0.45±0.93	0.91±2.03	0.07
CK-MB, U/L <sup>c</sup>	48.5±96.1	39.3±89.3	33.8±84.5	0.36
Troponin I, $\mu$ g/L <sup>c</sup>	15.1±28.0	8.1±22.1	11.5±24.9	0.19
AST, U/L <sup>c</sup>	90.4±140.6	59.9±67.9	72.4±85.3	0.09
ALT, U/L <sup>c</sup>	48.1±64.7	30.6±38.6	33.0±22.6	0.02
LVEF (%) <sup>c</sup>	48.2±12.2	53.1±11.0	49.4±10.2	0.01
WMD <sup>c</sup>	6.9±9.9	7.9±8.7	7.9±10.7	0.34

Values are presented as mean ± standard deviation. <sup>a</sup>MI, myocardial infarction; <sup>b</sup>MACCE, major adverse cardiac and cerebrovascular event; <sup>c</sup>CK-MB, creatine kinase-MB; <sup>d</sup>AST, aspartate aminotransferase; <sup>e</sup>ALT, alanine aminotransferase; <sup>f</sup>LVEF, left ventricular ejection fraction; <sup>g</sup>MI, myocardial infarction; <sup>h</sup>WMD, wall motion score index.

Table 2. Angiographic findings according to T-wave groups

	No T-wave <sup>a</sup> (n=70)	Recovered T-wave <sup>a</sup> (n=158)	Persistent T-wave <sup>a</sup> (n=71)	p-value <sup>b</sup>
Coronary <sup>c</sup>				
LAD <sup>c</sup>	42 (60.0%)	83 (52.5%)	36 (50.7%)	0.12
RCA <sup>c</sup>	21 (30.0%)	39 (24.7%)	39 (54.9%)	0.01
LCx <sup>c</sup>	6 (8.6%)	16 (10.1%)	4 (5.6%)	0.36
Multi-vessel disease <sup>c</sup>	39 (55.7%)	73 (46.2%)	36 (50.7%)	0.36
Initial TIMI flow 0-1 <sup>c</sup>	45 (64.3%)	101 (63.9%)	57 (80.3%)	0.03
Final TIMI flow 2-3 <sup>c</sup>	45 (64.3%)	151 (95.8%)	68 (95.9%)	0.33
Angiographic thrombolysis <sup>c</sup>	13 (18.6%)	122 (77.3%)	49 (69.0%)	0.22
CAD <sup>d</sup> left anterior descending artery, LCx, left circumflex artery, RCA, right coronary artery, TIMI, thrombolysis in myocardial infarction.				

Values are presented as mean ± standard deviation. <sup>a</sup>MI, myocardial infarction; <sup>b</sup>MACCE, major adverse cardiac and cerebrovascular event; <sup>c</sup>CK-MB, creatine kinase-MB; <sup>d</sup>AST, aspartate aminotransferase; <sup>e</sup>ALT, alanine aminotransferase; <sup>f</sup>LVEF, left ventricular ejection fraction; <sup>g</sup>MI, myocardial infarction; <sup>h</sup>WMD, wall motion score index.

Table 3. MACCE at 2 years according to T-wave groups

	No T-wave <sup>a</sup> (n=70)	Recovered T-wave <sup>a</sup> (n=158)	Persistent T-wave <sup>a</sup> (n=71)	p-value <sup>b</sup>
Endpoints <sup>c</sup>				
MACCE <sup>c</sup>	15 (21.4%)	18 (11.4%)	13 (18.3%)	0.04
Cardiac death <sup>c</sup>	3 (4.3%)	2 (1.3%)	1 (1.4%)	0.56
TVR <sup>c</sup>	4 (5.7%)	7 (4.4%)	4 (5.6%)	0.64
Stroke <sup>c</sup>	1 (1.4%)	1 (0.6%)	2 (2.8%)	0.72
Rehospitalization <sup>c</sup> due to HF <sup>d</sup>	7 (10.0%)	6 (3.8%)	6 (8.5%)	0.03

Values are presented as mean ± standard deviation. <sup>a</sup>MI, myocardial infarction; <sup>b</sup>MACCE, major adverse cardiac and cerebrovascular event; <sup>c</sup>CK-MB, creatine kinase-MB; <sup>d</sup>AST, aspartate aminotransferase; <sup>e</sup>ALT, alanine aminotransferase; <sup>f</sup>LVEF, left ventricular ejection fraction; <sup>g</sup>MI, myocardial infarction; <sup>h</sup>WMD, wall motion score index.

RF, heart failure; MACCE, major adverse cardiac and cerebrovascular event; TVR, target vessel revascularization.