

## Relations between Chest Pain and Psychological Characteristics with Non-Coronary Artery Disease

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**Background and Objective:** One of the chief complaints of outpatients who visit to cardiologists is chest pain. However, when they are examined, most of them do not have coronary artery disease (CAD). There are few cardiologists who carry out psychological tests in order to find out why the patients are diagnosed as non-CAD. The purposes of this study are 1) to find out psychological characteristics of the patients having CAD and non-CAD and 2) to see the relations between the intensity of chest pain and the psychological characteristics. **Subjects and Methods:** 108 patients with chest pain were enrolled. They answered questionnaires: numerical rating scale (NRS) of pain and symptom check list-minor psychiatric disorders (SCL-MPD). We divided them into two groups. Group 1 consisted of low probability of acute coronary syndrome (ACS) and Group 2 consisted of moderate to severe probability. Group 1 had a treadmill test, single-photon emission computed tomography (SPECT), or coronary artery MDCT. Then, coronary angiography (CAG) was performed to the patients who showed abnormal results. Group 2 had CAG directly. **Results:** 19 patients (17.6%) were diagnosed as CAD. 10 patients (9.3%) underwent revascularization. The score of somatization was significantly higher in non-CAD group than CAD group (13 [9-20] vs. 9 [6-13],  $p=0.032$ ). The score of anxiety and NRS were correlated in non-CAD group ( $r=0.246$ ,  $p=0.020$ ). The score of depression and NRS were inversely correlated in CAD group ( $r=-0.504$ ,  $p=0.028$ ). In multivariable analysis, a high score of anxiety ( $\geq 11$  score,  $\geq 75$  percentiles) was the only meaningful predictor of severe chest pain ( $\geq 6$  score,  $\geq 75$  percentiles) in all the patients (odds ratio 8.962,  $p=0.011$ , 95% confidence interval 1.665-48.252). **Conclusion:** The score of somatization was higher in non-CAD group than CAD group. The intensity of chest pain and the score of anxiety were correlated.

## The Early Repolarization Pattern EKG in patients with Acute Coronary Syndrome: IVUS study

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**Background:** Early repolarization pattern (ERP) has been considered as benign condition in great majority of cases. Recently, the presence of ERP can be an index of poor prognosis in various heart diseases. **Method:** We analyzed 59 consecutive patients with acute coronary syndrome underwent primary coronary intervention and virtual histology intravascular ultrasonography (VH-IVUS). Thin cap fibroatheroma (TCFA) was defined as necrotic core (NC)  $>10\%$  of plaque area with a plaque burden of  $>40\%$  and NC in contact with the lumen for  $>3$  image slices. Positive remodeling was a remodeling index (lesion/reference vessel area)  $>1.05$ . The diagnostic criterion of ERP was defined when there is J-point elevation of  $\geq 0.1$  mV in two adjacent leads. **Results:** The presence of ERP was observed in 27 patients (45.8%). Although there was no significant difference in lesion length and remodeling index at minimal lumen area between the 2 groups, reference diameter and minimal luminal area were significantly smaller in patients with ERP ( $p=0.033$ ,  $p=0.048$ , respectively). The lesion characteristics of patients with ERP demonstrated (1) more necrotic core ( $p<0.001$ ), (2) lesser calcium component ( $p=0.028$ ). Although the incidence of plaque rupture failed to demonstrate significant differences, TCFA was more frequently observed in patients with ERP ( $p=0.038$ ). **Conclusion:** We report, for the first time, that the ERP in ACS might distinguish patients with more vulnerable plaque.

	With ERP (n = 27)	Without ERP (n = 32)	p value
Lesion length (mm)	22.5±7.1	19.6±7.9	0.148
Distal reference lumen area (mm <sup>2</sup> )	6.1±2.2	7.5±2.8	0.033
Minimal lumen area (mm <sup>2</sup> )	2.8±0.6	3.4±1.3	0.048
Remodeling index at MLA site	1.0±0.3	0.9±0.4	0.071
Remodeling index at NC	1.0±0.3	1.0±0.5	0.746
Average fibrotic plaque (%)	54.7±10.3	69.0±12.7	<0.001
Average fibrofat plaque (%)	14.8±7.9	8.5±3.1	<0.001
Average necrotic core (%)	22.8±7.7	13.7±6.4	<0.001
Average dense calcium (%)	5.8±3.4	8.9±6.6	0.028
% fibrotic plaque at maximum NC site	48.7±11.8	52.8±15.7	0.083
% fibrofat plaque at maximum NC site	4.8±6.4	4.4±5.3	0.896
% necrotic core at maximum NC site	39.1±10.4	27.8±10.4	<0.001
% dense calcium at maximum NC site	9.6±6.7	14.8±9.7	0.020
Thin cap fibroatheroma (%)	17 (63.0)	11 (34.4)	0.038
Plaque rupture	8 (29.6)	13 (40.6)	0.424