■ Sat-157 ■

N-terminal Pro-brain Natriuretic Peptide and Clinical Outcome in Left Main Coronary Artery Disease

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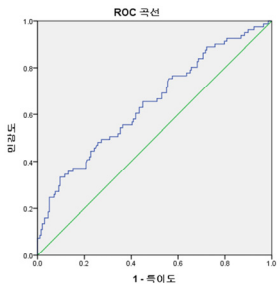
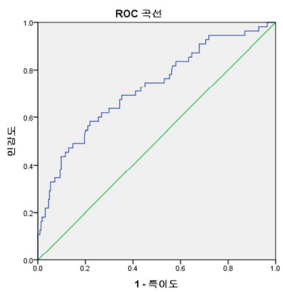
Background/Aims: N-terminal pro-B type natriuretic peptide (NT-proBNP) is well-known prognostic marker of congestive heart failure. Left main coronary artery (LMCA) disease is one of the common causes of ischemic heart failure. However, little is known about the prognostic value of NT-proBNP in patients with LMCA disease. Therefore, we sought to investigate prognostic value of NT-proBNP predicting major adverse cardiac events (MACEs) and mortality in these patients. **Methods:** Between June 2006 and December 2012, 279 patients (206 men; mean age=64.4±10.5 year-old) underwent percutaneous coronary intervention (PCI) for unprotected LMCA disease were analyzed in this study. Major adverse cardiovascular events (MACEs) were defined as death, non-fatal myocardial infarction, and repeat revascularization. The mean follow-up duration was 1634±929 days. **Results:** Log NT-proBNP was significantly higher in patients with higher Syntax score (p for trend <0.001) and complex LMCA disease (p for trend <0.001). During the follow-up, 81 (29.0%) MACEs and 55 (19.7%) deaths occurred. Log NT-proBNP level was significantly higher in patient with MACEs (6.48±2.03 versus 5.45±1.51, p<0.001) and death (7.00±2.08 versus 5.44±1.49, p<0.001). In Cox proportional hazards model, log NT-proBNP was an independent predictor of long-term MACEs (hazards ratio [HR] 1.33, 95% confidence interval [CI] 1.13 – 1.55; p<0.001) and mortality (HR 1.628, 95% CI 1.326 – 1.998; p<0.001) after adjusting for confounding variables. In receiver operating characteristics (ROC) curve analysis, area under the curve (AUC) of log-NT proBNP for predicting MACEs and mortality was 0.647 and 0.725, respectively. The optimum cut-off value of log NT-proBNP was 6.41 ng/mL. In Kaplan-Meier survival curve analysis, patients with higher log-NT proBNP level had significantly higher rates of MACE (log-rank p<0.001) and mortality (log-rank p<0.001). **Conclusions:** In patients who underwent PCI for unprotected LMCA disease, NT-proBNP was associated with angiographic severity score, and was an independent prognostic factor for clinical outcome.



MACE



Mortality

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The association between serum levels of uric acid and subclinical atherosclerosis

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Background/Aims: Data on the association between serum uric acid levels and subclinical atherosclerosis in a large general population is limited. **Methods:** Surrogate markers of subclinical atherosclerosis, brachial–ankle pulse wave velocity (baPWV), and carotid intima–medial thickness (IMT) and plaque were examined in 2,560 subjects (60 ± 8 years, 33% men) without a previous history of cardiovascular or cerebrovascular disease, neurological abnormalities, cerebral hemorrhage, or malignancy who participated in baseline health examinations for a community-based cohort study. **Results:** All participants were stratified into four groups based on the quartiles of serum uric acid levels. The mean carotid IMT (group I [lowest]: 0.74 ± 0.15 vs. group II: 0.74 ± 0.16 vs. group III: 0.79 ± 0.20 vs. group IV [highest]: 0.79 ± 0.20 mm) and baPWV (group I: 1441 ± 271 vs. group II: 1444 ± 228 vs. group III: 1495 ± 255 vs. group IV: 1518 ± 250 cm/s), and the incidence of plaque baPWV (group I: 28.9% vs. group II: 29.0% vs. group III: 36.2% vs. group IV: 41.0%) were significantly different among all groups (p<0.001, respectively). The uric acid levels were significantly correlated with baPWV (r=0.142) and carotid IMT (r=0.140)(p<0.001, respectively). Multiple regression analysis showed that uric acid levels were significantly associated with baPWV (β=0.100), and carotid IMT (β=0.065) and plaque (odds ratio=1.125)(p<0.05, respectively). **Conclusions:** The serum levels of uric acid have an independent impact on subclinical atherosclerosis in a relatively healthy Korean population.

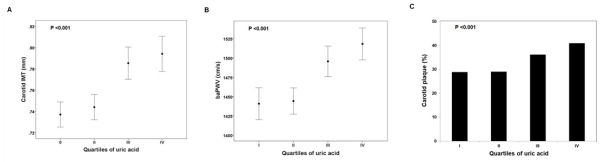

Figure 1 Comparison of subclinical atherosclerosis parameters according to the quartiles of uric acid. (a) carotid IMT, (b) baPWV, and (c) carotid plaque.

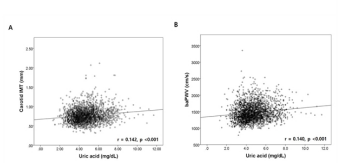

Figure 2 Correlations between the serum levels of uric acid and subclinical atherosclerosis parameters. (a) carotid IMT and (b) baPWV.

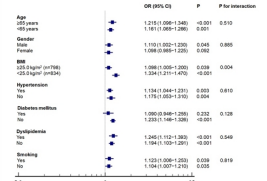

Figure 3. Subgroup analysis for the association between the serum levels of uric acid and carotid plaque

Table 1. Baseline characteristics

	Quartiles of uric acid				p
	I (lowest) (n = 862)	II (n = 669)	III (n = 643)	IV (highest) (n = 986)	
Age, years	59.6 ± 7.8	60.1 ± 7.4	61.0 ± 7.8	61.1 ± 8.5	0.001
Male, n (%)	63 (9.6)	120 (17.4)	247 (38.4)	412 (72.8)	<0.001
BMI, kg/m²	24.0 ± 2.9	24.6 ± 2.9	25.0 ± 3.1	26.0 ± 2.8	<0.001
Heart rate, bpm	66.9 ± 8.8	67.2 ± 9.6	66.9 ± 10.1	67.0 ± 10.3	0.969
SBP, mmHg	120.4 ± 16.2	120.8 ± 14.7	123.9 ± 14.8	126.7 ± 16.1	<0.001
DBP, mmHg	71.9 ± 10.1	72.3 ± 9.3	74.6 ± 8.9	77.5 ± 9.9	<0.001
Past history					
Hypertension	271 (40.9)	303 (44.0)	331 (51.5)	368 (66.0)	<0.001
Diabetes mellitus	105 (15.9)	92 (13.4)	109 (17.0)	105 (18.8)	0.080
Dyslipidemia	260 (37.8)	261 (37.9)	249 (38.7)	178 (31.4)	0.036
Smoking, n (%)	62 (9.4)	102 (14.8)	211 (32.8)	320 (56.6)	<0.001
Laboratory					
Total cholesterol, mg/dL	198.8 ± 34.8	199.2 ± 36.2	201.7 ± 37.7	197.3 ± 37.5	0.196
Triglyceride, mg/dL	109.7 ± 63.6	118.2 ± 89.9	134.8 ± 89.4	158.1 ± 86.9	<0.001
HDL cholesterol, mg/dL	58.8 ± 16.3	56.5 ± 14.4	52.8 ± 14.0	48.4 ± 13.0	<0.001
LDL cholesterol, mg/dL	120.2 ± 30.8	121.3 ± 32.2	124.0 ± 34.6	120.8 ± 34.3	0.170
Fasting glucose, mg/dL	100.8 ± 26.0	98.1 ± 17.6	103.0 ± 20.2	103.8 ± 16.5	<0.001
Uric acid, mg/dL	3.3 ± 0.4	4.3 ± 0.2	5.1 ± 0.3	6.6 ± 0.9	<0.001
hsCRP, mg/dL	1.3 ± 2.9	2.0 ± 8.0	1.8 ± 4.0	1.6 ± 3.1	0.375

Values are given as mean ± standard deviation or number (%).
BMI = body mass index; DBP = diastolic blood pressure; HDL = high-density lipoprotein; hsCRP = high-sensitivity C-reactive protein; LDL = low-density lipoprotein; SBP = systolic blood pressure.

Table 2. Multivariate regression analysis for the association between clinical variables and subclinical atherosclerosis

	Carotid IMT		baPWV		Carotid plaque	
	β	p	β	p	OR (95% CI)	p
Age, yrs	0.416	<0.001	0.394	<0.001	1.070 (1.052–1.088)	<0.001
Male	0.003	0.931	0.022	0.567	1.001 (0.661–1.515)	0.998
BMI, kg/m²	0.014	0.584	-0.062	0.015	0.993 (0.950–1.038)	0.754
Uric acid, mg/dL	0.100	0.001	0.055	0.029	1.125 (1.004–1.261)	0.043
hsCRP, mg/dL	-0.044	0.075	0.061	0.012	0.994 (0.962–1.028)	0.729
Hypertension	0.090	0.001	0.220	<0.001	1.530 (1.160–2.018)	0.003
Diabetes mellitus	0.087	0.001	0.134	<0.001	1.677 (1.223–2.300)	0.001
Dyslipidemia	0.025	0.325	-0.022	0.927	1.243 (0.949–1.629)	0.114
Smoking	-0.017	0.638	-0.006	0.874	1.633 (1.069–2.448)	0.018

baPWV = brachial-ankle pulse wave velocity; BMI = body mass index; CI = confidence interval; hsCRP = high-sensitivity C-reactive protein; IMT = intima-media thickness; OR = odds ratio.