Acute coronary syndrome, basic / clinical-6 (IHD)

PJ001

March 15 (Thu)

Room 26 (Convention Hall on 1st floor in International Exbition Hall No.2)

10 : 10—10 : 55

PJ-001

Impact of Optical Coherence Tomography (OCT), Integrated-Backscatter IVUS (IB-IVUS) and 64-slice Multidetector CT (64-MDCT) on Vulnerable and Stable Lesion Characteristics

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Several pathological studies suggest that disruption of thin-cap (<65 μm) fibroatheroma (TCFA) leads to acute coronary syndrome (ACS; vulnerable plaque). While OCT (Lightlab, Westford, MA) offers a high-resolution image (10 μm), IB-IVUS provides precise tissue characterization and 64-slice-MDCT (Aquilion-64-system, Toshiba) can render plaque density profile (Hounsfield-units;HU). We prospectively performed 64-slice-MDCT, OCT and IB-IVUS prior to coronary-intervention (PCI) in 64 lesions (27;ACS and 37;stable) in 45 patients. Cap thickness by OCT, lipid area by IB-IVUS and plaque density by 64-MDCT were significantly different between the two groups (Table). While all patients were treated by drug-eluting-stent (DES), restenosis rate was similar between the two groups at 8 months. Conclusions: While OCT, IB-IVUS and 64-slice MDCT clearly differentiated vulnerable from stable lesions, DES could convey similar favorable outcome at 8-month follow-up.

	Vulnerable	Stable	p
No. of lesions	27	37	
PCI pre			
OCT			
Cap thickness (μm)	40±15	273±145	<0.01
IB-IVUS			
% Lipid area	35±10	25±9	<0.01
% Fibrous area	63±10	72±7	<0.01
64-MDCT			
Plaque density (HU)	34±20	115±61	<0.01
Follow-up			
Restenosis rate (%)*	5.0	3.5	ns

**Restenosis was defined as ≥50% diameter stenosis at follow-up by QCA*

PJ-002

What Determines Yellow Color of Atherosclerotic Coronary Plaques

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Background: It was suggested that dark yellow coronary plaques are vulneable. However, yellow color is consodered to be dependent on beta-carotene and therefore yellow color may not indicate histological or molecular changes in the plaques. Aim: To clarify what substance determines depth of yellow color and to identify the substance which determines yellow color. Methods: 1) Microscopic study was performed to examine color of the substances composing atherosclerotic plaques by white light and by fluorescence. Fluorescence was excited at 360nm and emitted at 420nm (a) or excited at 470nm and emitted at 515nm(b). 2) The relationships among conventional angioscopic colors, autofluorescence angioscopic colors and histological changes were examined in human coronary plaques. Results: Among the major substances composing atherosclerotic plaques, beta-carotene alone exhibited yellow color under white light. When conjugated to beta-carotene, free cholesterol and triglyceride exhibited light yellow color while cholesteryl esters (linolate) exhibited orange color under white light and also orange fluorescence at (a) and (b). Yellow and dark yellow plaques respectively exhibited yellow and orange autofluorescence at (a) and (b). There were no obvious changes in collagen fiber distribution between yellow and dark yellow plaques. Conclusion: Cholesterol esters which conjugated to beta-carotene mainly determines depth of yellow color but depth of color does not necessarily indicate vulneability and they can be identified by fluorescence angioscopy in vivo.

PJ-003

Usefulness of 2-dimensional Strain Imaging in Emergency Department Patients with Non ST-elevation Acute Coronary Syndrome

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Background: Two-dimensional strain imaging echocardiography(2D strain) is reported to be a novel method to assess quantitative assessment of regional wall motion. The aim of this study was to examine whether early detection of regional wall motion abnormalities by 2D-strain echocardiography predicts the risk stratification of patients presenting with non ST-elevation acute coronary syndrome(ACS). Methods and Results: Consecutive 25 patients with non ST elevated ACS who were underwent coronary angiographic examination were enrolled.Plasma troponin I,high sensitive C reactive protein(CRP) and brain natriuretic peptide (BNP) concentration were measured on arrival at the emergency department. All patients underwent resting 2D-strain imaging echocardiography (GE Vivid I Echo PAC PC).We analyzed for the 18 segment's radial strain by 2D-strain imaging echocardiography and calculated radial strain index(SRI) by averaging 18 segment's radial strain. Mean baseline SRI in normal subjects was 62±21%;in ACS patients,44&plusmn(p<0.05). SRI was negatively related to plasma BNP and troponinI(r=0.58 r=0.50,both,p<0.05). SRI was significantly lower in patients with multi-vessels coronary involvement than those in single-vessel coronary involvement(41%vs52%,p<0.05). There was no correlation between SRI and left ventricular ejection fraction,and hs-CRP. Conclusion: 2D-strain imaging echocardiography is a useful clinical tool for early risk stratification in patients with non ST elevation ACS.

PJ-004

The Activated Protein C as a Clinical Predictor for Acute Coronary Syndromes

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Background Circulating markers indicating the instability of atherosclerotic plaques could have diagnostic and prognostic value in acute coronary syndromes (ACS). We evaluated activated protein C (APC), an antithrombotic, antiinflammatory, and profibrinolytic properties, as a clinical predictor of ACS. **Methods** We conducted a prospective study of 419 patients with ACS. We