

coronary angiography as a means to improve the appropriateness of treatment for patients with stable CAD.

Methods: In this prospective, controlled, before-after trial, stable CAD patients with coronary lesion stenosis $\geq 50\%$ according to elective coronary angiography were consecutively recruited. In phase one, SYNTAX scores were calculated by the treating cardiologists and revascularization decisions were made without feedback from the core laboratory. In phase two, SYNTAX scores were calculated by the core laboratory technician immediately after coronary angiography and provided to their cardiologists in real time to aid in decision-making. The primary outcome is the proportion of treatment strategies deemed inappropriate by the Chinese appropriate use criteria for coronary revascularization.

Results: Between August 2016 and September 2017, 3245 patients were enrolled in the trial among 12 participating cardiologists and were assigned to the pre-intervention group (August 2016 to March 2017, n=1525) or the intervention group (March 2017 to September 2017, n=1720). During the intervention period, there was no difference in inappropriate treatment rate compared with the control period (Adjusted odds ratio [OR]: 0.89; 95% confidence interval [CI]: 0.78–1.01; p=0.071). During the intervention period, the proportions of both inappropriate percutaneous coronary intervention (PCI) (Adjusted OR: 0.82; 95% CI: 0.74–0.92; p<0.001) and PCI utilization (Adjusted OR: 0.9; 95% CI: 0.79–0.98; p=0.016) were significantly lower. During the intervention period, the proportion of medical therapy was significantly higher (Adjusted OR: 1.19; 95% CI: 1.03–1.37; p=0.016), and the increased medical therapy did not lead to more inappropriate medical therapy (Adjusted OR: 1.00; 95% CI: 0.76–1.33; p=0.975).

Conclusions: Real-time angiographic core lab SYNTAX score feedback failed to reduce the inappropriate treatment decisions, but produced a significant reduction in the proportion of inappropriate PCI and increased the proportion of appropriate medical therapy. This study provides a practical, site-level approach to reduce inappropriate PCI.

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P1648

Potential role of vitamin C intracoronary administration in preventing cardiac injury after primary percutaneous coronary intervention in patients with ST-elevation myocardial infarction

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Aim: The aim of this study was to determine the effects of intravenous and intracoronary administration of vitamin C on the incidence of periprocedural myocardial injury in patients undergoing primary percutaneous coronary intervention (PCI).

Methods: In this prospective double-blind randomized clinical trial, 252 patients undergoing primary PCI were enrolled to receive either 3g of intravenous vita-

min C before PCI and 100mg of intracoronary vitamin C during PCI in addition to the routine treatment (n=126) or just the routine treatment (n=126). Cardiac biomarkers were measured before and then 6 and 12 hours postprocedurally. The incidence of contrast-induced acute kidney injury (CI-AKI), according to the levels of serum creatinine, neutrophil gelatinase-associated lipocalin, and platelet activation biomarker (P-selectin), was determined before and 6 hours after PCI.

Results: In the patients who received vitamin C, the serum levels of troponin T after 12 hours and creatine kinase-MB after 6 hours were significantly lower than those in the placebo group (P=0.003 and P<0.001, respectively). CI-AKI occurred in 6 (4.7%) patients in the study group and 8 (6.3%) patients in the control group without any significant difference. Additionally, the 2 groups were statically similar as regards the changes in the level of P-selectin.

Conclusions: In primary PCI patients, the use of intravenous and intracoronary vitamin C can reduce periprocedural myocardial injury.

P1649

The incidence and risk factors of percutaneous coronary intervention procedures in patients with atrial fibrillation: the fushimi AF registry

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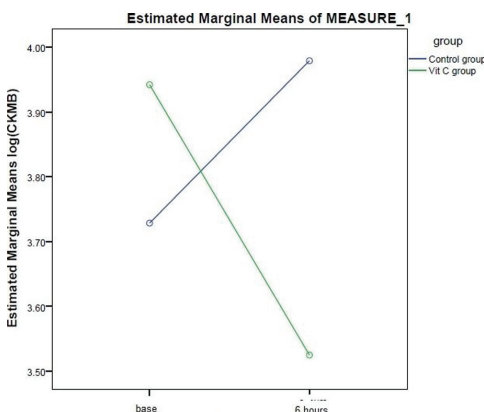
Background: Adequate antithrombotic therapies with oral anticoagulants (OAC) and antiplatelet agents in atrial fibrillation (AF) patients undergoing percutaneous coronary intervention (PCI) had been evaluated. Although some factors composed of CHA2DS2-VASc score are overlapped with risk factors of coronary artery disease, the incidences and risk factors of PCI procedures, as well as the association between CHA2DS2-VASc score and the incidence of PCI, in patients with AF remains unclear.

Methods: In the Fushimi AF Registry, the cumulative incidences of PCI procedures were estimated by the Kaplan-Meier method and differences were assessed with the log-rank test. To clarify risk factors of PCI, we selected pre-specified variables, such as dyslipidemia, hemodialysis, previous PCI and all components of CHA2DS2-VASc score, and entered them into a multivariate Cox proportional hazard model.

Results: In the Fushimi AF Registry, we examined 4325 AF patients in whom follow-up data were available and median follow-up period was 1169 (interquartile range: 655–1991) days. There were 143 PCI procedures performed in 122 patients, and 28 (23%) were emergent ones. The cumulative incidence of PCI at 1 year and 3 years was 46 (1.1%) and 85 (2.4%), respectively (Figure 1A). The incidence of PCI procedures in patients with CHA2DS2-VASc score ≥ 2 in men and 3 in women (n=3557), who were strongly recommended to treat with OAC in European guidelines, was significantly higher than those in patients with CHA2DS2-VASc score of 1 in men and 2 in women (n=535), and CHA2DS2-VASc score of 0 in men and 1 in women (n=233) (log-rank p=0.004) (Figure 1B). After multivariable adjustment, previous PCI (hazard ratio (HR), 3.23; 95% confidence interval (CI), 2.02 to 5.08; p<0.0001), men (HR, 2.21; 95% CI, 1.45 to 3.49; p=0.0004), diabetes mellitus (HR, 1.89; 95% CI, 1.30 to 2.75; p=0.0008), dyslipidemia (HR, 2.04; 95% CI, 1.35 to 3.14; p=0.0008), hemodialysis (HR, 2.90; 95% CI, 1.27 to

Table 1. Patients' characteristics with comparisons between the groups

	Control Group (N=126)	Study Group (N=126)	P
Age (y)	57.18±10.4	58.64±10.41	0.26
Sex (male)	104 (82.5)	97 (76.9)	0.27
Diabetes	42 (33.3)	50 (39.6)	0.29
Hypertension	52 (41.3)	56 (44.4)	0.61
Smoking	50 (39.6)	53 (42)	0.70
Hyperlipidemia	21 (16.6)	29 (23)	0.20
Family history	24 (19)	13 (10.3)	0.05
Ischemic heart disease	5 (3.9)	15 (11.9)	0.02
Volume of the contrast medium	996±204.9	964.2±169.4	0.18
Ultravist	6 (4.8)	6 (4.8)	1
Ejection fraction	41.37±7.77	43.00±6.83	0.09
Serum creatinine	0.93±0.2	0.94±0.23	0.63
No. of diseased vessels			
One vessel	58 (46)	43 (34.1)	
Two vessels	45 (35.7)	50 (39.6)	
Three vessels	23 (18.2)	33 (26.2)	



Changes in creatinin kinase MB

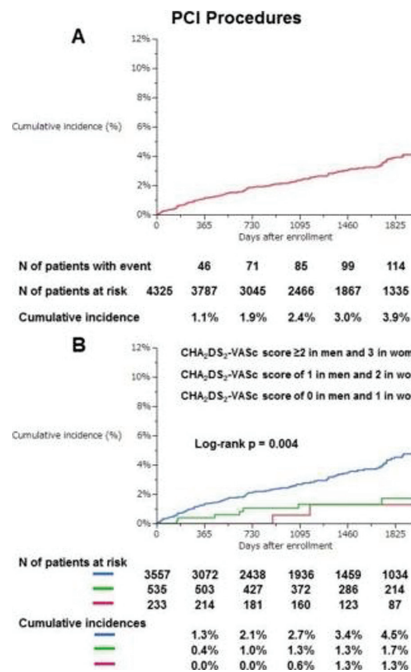


Figure 1

5.76; $p=0.005$), age ≥ 75 years (HR, 2.21; 95% CI, 1.23 to 4.25; $p=0.01$), and age 65–74 years old (HR, 2.06; 95% CI, 1.14 to 4.01; $p=0.02$) were associated with PCI procedures.

Conclusion: About one in 100 AF patients underwent PCI annually, and patients with higher CHA2DS2-VASc score were associated with higher incidences of PCI procedures. Among the factors composed of CHA2DS2-VASc score, diabetes mellitus, age ≥ 75 years, and age 65–74 years old were risk factors of subsequent PCI in patients with AF.

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P1650

Three year clinical outcomes after treatment of coronary atherosclerosis with Sirolimus coated balloon

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Background: Drug coated balloon (DCB) is emanating technology for treating coronary atherosclerosis especially when metal scaffolding is undesirable such as in-stent restenosis and small vessel de-novo disease. Paclitaxel is the widely used drug on the DCB platform, while Sirolimus has proven to be more safe and efficacious in treating coronary stenosis.

Aim: We sought to evaluate the performance of Magictouch Sirolimus coated balloon (SCB) (Concept Medical) incorporating a proprietary Nanolute technology in patients with de-novo and restenotic lesions in coronary arteries.

Methods: NANOLUTE is multi-centre, prospective and real world study. The measured endpoint was MACE (major adverse cardiac event) at 1 year. MACE component encompassed target lesion revascularization (TLR), target vessel myocardial infarction (TV-MI) and cardiac death. To derive the device performance in long run, we calculated MACE at extended follow-up at 2 years and 3 years.

Results: 447 patients were included in the study, with a total of 529 PCI procedures on 475 lesions, all treated with SCB. Of 475 lesions, 46.95% lesions were in-stent restenotic lesion and de-novo accounted for 53.05% lesions. Among those 53.05% de-novo lesions, 45.63% lesions were located in small coronary vessels (RVD ≤ 2.75 mm). The event characteristics were depicted in the table: 1. MACE rates were 4.17%, 5.00% and 6.44% at 1 year, 2 years and 3 years respectively. The follow up for the rest of the patients is yet to come as it is on-going registry. There was no increment in event at 2 and 3 years follow up.

Cumulative clinical outcomes upto 3 year

N (%)	1 Year (N=408)*	2 Years (N=340)*	3 Years (N=264)*
MACE	17 (4.17%)	17 (5.0%)	17 (6.44%)
TLR	15 (3.68%)	15 (4.4%)	15 (5.68%)
TV-MI	1 (0.25%)	1 (0.29%)	1 (0.38%)
Cardiac Death	1 (0.25%)	1 (0.29%)	1 (0.38%)

*No. of patients completed follow-up till January 2018.

Conclusion: SCB proved a valid revascularization strategy in an all-comers population of patients with ISR and de-novo lesions in small vessels, with an acceptable rate of cardiac events up to long term follow-up of 3 years.

INFLAMMATION AND CORONARY INTERVENTIONS

P1651

Elevated non-high-density lipoprotein cholesterol levels are associated with an increased inflammatory response following elective percutaneous coronary intervention

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Introduction: Non-high-density lipoprotein cholesterol (non-HDL-C) is currently recommended as a second target for dyslipidemia management. Additionally, recent evidence reveals that (1) non-HDL-C is a superior predictor of adverse cardiovascular events than LDL-C within patients with stable coronary artery disease (CAD) and (2) the inflammatory response after percutaneous coronary intervention (PCI) is related with an adverse outcome.

Purpose: To investigate the association between non-HDL-C levels and inflammatory markers in patients with CAD undergoing elective PCI.

Methods: We enrolled 1,241 consecutive stable CAD patients who successfully underwent elective PCI; of those, 718 had preprocedural levels of non-HDL-C available. Patients were divided into the following groups: low non-HDL-C group (non-HDL-C < 100 mg/dl, n=408) and high non-HDL-C group (non-HDL-C ≥ 100 mg/dl, n=310). Blood samples were collected before and on a periodic basis after PCI, and the peak levels of high-sensitivity C-reactive protein (hsCRP), creatine phosphokinase MB isoenzyme (CKMB) and troponin I (TnI) were determined. Multiple linear regression analyses were performed to determine the association of non-HDL-C levels with the existence of postprocedural TnI, CKMB and hsCRP alterations. Atherosclerotic risk factors and baseline clinical, medications and procedural characteristics were determined.

Results: Baseline characteristics, such as gender, smoking status, previous MI, renal impairment, previous CABG, previous stroke and body mass index, were

similar in the two groups. High non-HDL-C patients were younger, had lower prevalence of hypertension and insulin-dependent diabetes, and were less likely to receive statins. Postprocedural peaks as well as the percentual variations of TnI and CKMB were similar between groups. However, patients in both groups had increased postprocedural hsCRP levels, more importantly within high non-HDL-C patients [7.2 (0–256.4) vs 10.2 (0.3–239.1) mg/dl; $p=0.002$]. In addition, the variation of hsCRP was also markedly increased in both groups, mainly in the high non-HDL-C patients ($p=0.009$). Multiple linear regression analyses demonstrated that age, number of target lesions and non-HDL-C levels were independently associated with periprocedural variation of hsCRP.

Conclusion: In this study, high preprocedural non-HDL-C levels are associated with an increased inflammatory response after an elective PCI – regardless of the extent of myocardial injury and previous use of statin.

P1652

Effect of systemic inflammation and coronary artery disease complexity on outcomes after percutaneous coronary intervention

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Background: Inflammation and complexity of coronary artery disease (CAD) have been shown to individually affect outcomes after percutaneous coronary intervention (PCI). Whether or not a relationship between inflammation, complexity of CAD and outcomes following PCI exists is not well established.

Purpose: We sought to characterize the relationship between levels of C-reactive protein (CRP) and outcomes within the first year following PCI according to the complexity of CAD assessed by the SYNTAX score (SS).

Methods: All consecutive patients who underwent PCI at our center between January 2009 and December 2016 for whom levels of CRP and SS were available, were included. The primary endpoint of interest was the composite of death or myocardial infarction (MI) at 1 year of follow-up. Baseline complexity of CAD was prospectively assessed with the SS and categorized as: low (SS ≤ 22), intermediate (SS 23–32) and high (SS ≥ 33) complexity. We evaluated the effect of elevated CRP (≥ 2 mg/L) across categories of SS by means of multivariable Cox regression models.

Results: A total of 17,708 patients underwent PCI during the study period. 15,759 (89.0%) patients had a low SS, 1,373 (8.0%) had an intermediate SS and 576 (3.0%) had a high SS. Median levels of CRP were progressively higher as patients transitioned from low to intermediate and high SS (2.1 vs. 2.4 vs. 2.9 mg/L; $p=0.001$). By linear regression analysis, higher levels of CRP were associated with greater SS (per mg/L increase in CRP; $\beta=0.003$; $p=0.005$). Across categories of SS, CRP ≥ 2 mg/L was associated with higher 1-year rates of death or MI in patients with low (5.8% vs. 9.7%), intermediate (8.2% vs. 18.6%) and high (17.6% vs. 28.3%) SS (ptrend < 0.0001). By multivariable Cox regression analysis, elevated CRP was associated with greater risk of death or MI across categories of SS, without evidence of interaction (pinteraction=0.19).

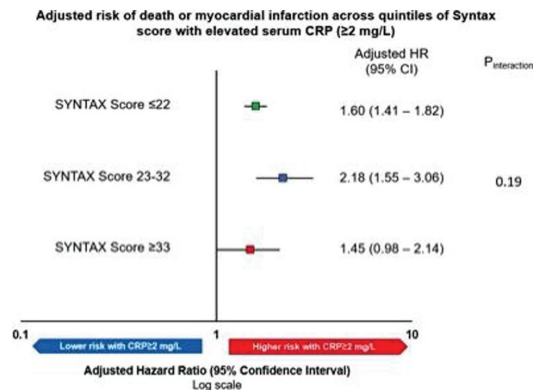


Figure 1

Conclusion: Among patients undergoing PCI, higher levels of CRP are associated with greater complexity of CAD and both exert an additive effect on the risk of death or MI. Targeting inflammation alongside other established cardiovascular risk factors may improve outcomes after PCI.

P1653

The role of thrombus and its composition in early re-endothelialization in injured swine coronary arteries

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Background: Thrombus deposition following vascular injury is important in vascular healing. It is typically deposited on stent struts early after placement and is