Conclusion: Baseline CMR assessment of LAD ischaemia correlated better with the 4 month LAD FFR data as compared to the FFR measurements taken prior to RCA CTO revascularisation. This result was driven by the ability of CMR (in this small retrospective analysis) to identify patients with negative LAD FFR measurements at 4 months follow up. As such, our findings suggest that CMR could act as a reliable tool in the evaluation of remote artery disease in patients with a CTO. Prospective trials are now required to further investigate this hypothesis.

P3663

Comparison of 5-year outcomes after coronary artery bypass grafting and percutaneous coronary intervention in very old patients with triple-vessel or left main coronary artery disease

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Background/Introduction: Little data is available in the comparison of CABG with PCI in very old patients with triple-vessel or left main coronary artery disease. Purpose: We assessed the clinical effectiveness of CABG in comparison with that of PCI in over 80-year-old patients with triple-vessel disease (TVD) or left main coronary artery (LMCA) disease. Methods: From the CREDO-Kyoto registry cohort-2, the current study population consisted of 527 patients, who were older than 80 years old and underwent the first coronary revascularization for TVD or LMCA disease. They were divided into 2 groups, the CABG group (N=151) and the PCI group (N=376). The primary outcome measure were all-cause death and a composite of cardiac death and myocardial infarction (MI). The secondary outcome measures included cardiac death, noncardiac death, MI, stroke, hospitalization for heart failure, major bleeding, and any coronary revascularization. Results: The median and interquartile range of patient’s age in the CABG group was 82 (81–84) and 83 (81–85) in the PCI group. (P>0.10). Additionally, patients older than 85 years old accounted for 19% in the CABG group and 31% in the PCI group (P<0.01). The cumulative 5-year incidence of all-cause death was not significantly different between the CABG and the PCI groups (35.8% vs 42.9%, log-rank p=0.18). However, after adjusting for confounders, the excess risk of CABG relative to PCI for all-cause death turned significant (hazard ratio [HR] 0.65, 95% confidence interval [CI] 0.46 to 0.92, p=0.02). The cumulative 5-year incidence of a composite of cardiac death and MI were significantly different between the 2 groups (19.3% vs 29.0%, log-rank p=0.02). The excess risk of CABG relative to PCI for a composite of cardiac death and MI remained significant (HR 0.59, 95% CI 0.36 to 0.94, p=0.03).

Conclusion: CABG compared with PCI was associated with better long-term outcomes in patients over 80 years old with TVD and LMCA disease. CABG seemed an acceptable option for even very old patients with severe coronary artery disease.

P3664

Left ventricular post-infarct remodelling: temporal patterns and left ventricular functional evolution

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Background: Post-myocardial infarction, left ventricular (LV) remodelling may continue up to 1 year after ST-elevation myocardial infarction (STEMI), and is associated with adverse outcomes including heart failure, arrhythmias and mortality, while LV functional improvement post-infarction is associated with superior survival. The temporal patterns of LV remodelling and evolution of LV function post-myocardial infarction have not been investigated in the contemporary era of primary percutaneous coronary intervention (PCI).

Purpose: To investigate the course of LV functional improvement in patients who experience LV remodelling at different time points after STEMI (the index event) treated with primary PCI.

Methods: Clinical and echocardiographic data were analysed from an ongoing registry of STEMI patients treated with primary PCI. Echocardiograms were evaluated at baseline, 3, 6, and 12 months after the index event. LV remodelling was defined as an LVEF increase in LVEDV. Different categories of LV remodelling were defined according to the time when the LVEDV increase had achieved or exceeded a 20% threshold: i) early remodelling: 3 months ii) mid-term remodelling: 6 months and iii) late remodelling: 12 months. The impact of the temporal remodelling pattern on the improvement in LV ejection fraction (EF) was analysed using a linear mixed model.

Results: 2324 STEMI patients were analysed, 953 (41%) of whom demonstrated remodelling in the first 12 months after the index event (mean age 61±12 years, 77% male). Of these, 613 (64%) experienced early remodelling, 216 (23%) mid-term remodelling and 124 (13%) late remodelling. Mean LVEDV increased from 92±29 ml at baseline in early remodellers to 135±41 ml at 3 months, and subsequently decreased to 122±43 ml at 6 months and 115±40 ml at 12 months after the index event. The corresponding LVEDV at baseline, 3 months, and 6 months and 12 months was 97±25, 98±31, 134±38 and 116±42 ml in mid-term remodellers and 101±32, 107±31 and 136±39 ml in late remodellers, respectively (Figure A). Mean LVEF increased from 46±9% at baseline to 50±10% at 3 months, 51±10% at 6 months and 52±10% at 12 months post-infarction, with no significant difference between remodelling categories (P>0.125) (Figure B).

Conclusions: A similar evolution of LV systolic functional improvement was observed in patients who experienced LV remodelling at different time points during the first year post-STEMI. This suggests that the LV remodelling process is precipitated by factors other than those governing the improvement in systolic function.

P3665

Low accuracy of the grace score for anatomic stratification of patients with ST-elevation acute coronary syndromes

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Background: In patients with acute coronary syndromes without ST elevation (ACS), coronary anatomy is the major risk-predisposing and conduct-defining. Risk stratification at admission can be used to guide whether the patient should undergo invasive angiography or whether to follow a more conservative strategy. The GRACE Score is the most used probabilistic model of cardiovascular events for this stratification, but its accuracy for anatomical gravity is not proven.

Purpose: To test the hypothesis that the GRACE score predicts anatomical severity.

Methods: Patients admitted to the Coronary Unit were consecutively included by objective criteria of ACS and who underwent invasive angiography. “Critical anatomy” was defined as trirarterial or trunk involvement of the left coronary artery. The GRACE score was numerically and dichotomously tested. In the latter, low-risk or medium-high risk GRACE was defined by the cutoff point that defines the first tertile (109).

Results: A total of 685 patients were included, aged 65±13 years, 56% men, GRACE 116±37, coronary angiography with no obstructive lesion in 19%, uni, bi, trirarterial and left coronary artery disease were evaluated in 25%, 18%, 25% and 12%, respectively. The area below the ROC curve of the GRACE score for detecting obstructive coronary disease was 0.59 (95% CI = 0.54–0.64) and for “critical anatomy” was 0.61 (95% CI = 0, 57–0.66). The cut-off point below which the first GRACE tertile was defined was used to dichotomize the sample at low risk (N=320) and medium-high risk (N=365). This criteria had a sensitivity of 62% to detect “critical anatomy” (95% CI = 55–67%) and specificity of 52% to detect patients without “critical anatomy” (95% CI = 47–56%), resulting in a positive probability of 1.3 (95% CI = 1.1–1.5) and negative of 0.74 (95% CI = 0.64–0.87). For “severe anatomy”, the positive predictive value of GRACE > 109 is 43% (95%
CI = 38–49%), while the GRACE positive predictive value < 10% is 69% (95% CI = 64–74%).

Conclusion: The GRACE score has a low accuracy in the prediction of the coronary anatomy and it is not able to discriminate a group of individuals with low probability of "critical anatomy".

P3665
A simplified HEART-score improves discrimination for myocardial infarction in chest pain patients presenting to the emergency department


Background: Safe rule-in and rule-out algorithms of acute coronary syndrome (ACS) facilitate decision making in the emergency department (ED), HEART-score (including History, ECG, Age, Risk factors and Troponin level) has been shown to be safe for early rule-out of serious ACS. However, there are data, indicating that a simplified score, HET-score, including only History, ECG and Troponin, may have similar discriminatory ability. But this has never been prospectively tested. The aim was therefore to compare the discriminatory power of HET- and HEART-score.

Methods: This was a prespecified substudy of a prospective observational multicenter study in two phases (before and after the introduction of a new decision algorithm) conducted at six centers in two cities in Sweden. Patients presenting to the ED with symptoms suggestive of ACS (<10 minutes and an onset of last episode <12 hours) were eligible for inclusion. The endpoint, Myocardial infarction (MI) as index diagnosis, was adjudicated by two independent cardiologists.

Results: A total of 1233 patients were included. The median (IQR) age was 64 (53–73) and 553 (45%) were females. There were 126 (10%) diagnosed with MI as index diagnosis. Those patients with MI were older (70 vs 63) had more comorbidities than those without MI. In a multivariable analysis History (OR 95% CI: 2.90 (2.09–4.03)), ECG (1.61 (1.13–2.29) and Troponin (5.76 (4.27–7.76)) were independent predictors of acute myocardial infarction, whereas age (0.95 (0.61–1.49) and risk factors (0.76 (0.54–1.07)) were not. The distribution of HEART- and HET-score in patients with and without MI are shown in figure. In a ROC analysis, the area under curve (AUC) was significantly larger for HET-score (0.90 (0.87–0.92)) compared with HEART-score (0.86 (0.83–0.89)) (p < 0.001).

Figure 1

Conclusions: HEART-score can be simplified to HET-score with an improvement of discriminatory power in chest pain patients presenting to the emergency department.

P3667
Prediction of functional ischemia using resting distal coronary pressure to aortic pressure ratio in individual coronary artery


Background: Although Pa/Pd, defined as the average distal coronary pressure (Pd) divided by aortic pressure (Pa) at rest, has generally been considered as a substitute maker for fractional flow reserve (FFR), its clinical utility has not been established. This study evaluated the diagnostic accuracy of resting mean Pd/Pa for the prediction of hyperemic Pd/Pa < 0.80.

Methods: Three-hundred-twenty-six patients with angiographically intermediate stenoses were prospectively included in this clinical registry. After the coronary angiogram was obtained, a pressure sensor/thermistor-tipped guidewire was used, equalized, and positioned with the sensor in the distal third of the target artery. Two minutes after the last injection of contrast medium, Pa/Pd recording commenced for one minute. Then, an intravenous infusion of adenosine triphosphate (ATP) 150 μg/kg/min was administered through a large antecubital vein. The response to adenosine was confirmed by changes in heart rate and blood pressure and development of typical symptoms. Following a 3-minutes period, Pa and Pd were recorded for one minute, and a stable minimum value of FFR (calculated as hyperemic Pd/Pa) was established. After testing, the hemodynamic profiles were evaluated in all patients.

Results: In all cohorts, the average resting Pd/Pa value was 0.93 ± 0.05 and FFR value 0.81 ± 0.06. For prediction of FFR < 0.80 in the group overall, receiver-operating curve analysis showed that the best cut-off value of resting Pd/Pa was 0.93 (sensitivity 72%, specificity 78%). However, overall diagnostic accuracy was only 78%. In the subgroup analysis, the resting Pd/Pa cutoff in predicting FFR < 0.80 was 0.93 for the left anterior descending coronary artery (LAD) (sensitivity 78%, specificity 75%), 0.98 for the left circumflex coronary artery (sensitivity 17%, specificity 48%), and 0.97 (sensitivity 78%, specificity 61%). Diagnostic accuracies of subgroup-specific criteria were ~80% only for lesions in the LAD.

Conclusion: Because coronary flow hemodynamics is different, Resting Pd/Pa values were misleading in predicting FFR < 0.80 in the distal third of the target artery in the presence of stenosis with similar degree of FFR value. Resting Pd/Pa of 0.93 strongly predict the physiological significance of a coronary artery stenosis only in the LAD.

P3668
Pleiotropic effects of high-dose atorvastatin therapy in patients with ST-segment elevation myocardial infarction

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Aim: To study the relationship of atorvastatin pleiotropic effects depending on the duration of treatment during the 2-week therapy in patients with ST-segment elevation myocardial infarction (STEMI).

Methods: Ninety STEMI patients were included in the study. Patients were randomized into two groups: the first included 43 patients who received atorvastatin 80 mg/day (group 1), the average age was 52 ± 8.4 years. The second group (group 2) comprised 47 patients who received atorvastatin at low doses, the average age was 51 ± 9.4 years. Comparable patient were matched by age, sex, height, BMI, level of office blood pressure. C-reactive protein (CRP) and brain natriuretic peptide (BNP) were analyzed initially and after 24 weeks of follow-up. The vasoprotective effect of atorvastatin different doses was detected by the dynamics of the common carotid arteries intima-media thickness (IMT) by the ultrasonic method using the RF high-frequency signal technology with MyLab device (Esaote, Italy), cardiot-femoral pulse wave velocity (c-fPWV) by applanation tonometry device Sphygmocor ("ACCorMedical", Australia).

Results: A significant reduction of CRP by 9.1 times was detected from 12.7 (4.8, 22.6) to 1.4 (0.8, 2.2) p < 0.001 on a background of a 24-week atorvastatin therapy at a dose 80 mg, comparing with low-dose therapy - 7.8 times (from 9.4 (4.0, 14.3) to 1.2 (0.7, 3.0), p < 0.001). The BNP level in group 1 decreased from 82.3 (22.9, 120.4) to 33 (21.6, 69.5) -60% (p < 0.01), in group 2 - from 79.7 (47.2, 164.4) to 52.8 (16, 82.6) -33.8% (p < 0.001). Carotid artery IMT did not change in the 2nd group: initially - 692.5 (582, 810.5) μm, follow-up - 699 ± 1±49 μm. Regression of this parameter was detected from 724.7±150.2 μm to 836±106 μm (-12%, p < 0.001) in people receiving high doses atorvastatin. In group 1 there was a decrease in c-fPWV from 7.6 (7.0, 9) to 6.5±1.8 m/s (-14%, p < 0.05). In group 2 the indicator had no reliable dynamics: initially - 7.2 (6.3, 8.9) m/s, follow-up - 7.3 (6.0, 8.3) m/s (non-significant).

Conclusions: STEMI patients showed more pronounced anti-inflammatory and cardioprotective effect on the background of atorvastatin 80 mg. The vasoprotective effect was observed only on the background of high-dose statin therapy, which was manifested by decrease in IMT and PWV in the aorta.

P3669
Smoking and outcomes following guided de-escalation of antiplatelet treatment in acute coronary syndrome patients: the TROPICAL-ACS smoking substudy

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Background: A guided de-escalation of dual antiplatelet treatment (DAPT) with...