ACUTE CORONARY SYNDROME AND ACUTE MYOCARDIAL INFARCTION

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Abstract nos: 1 - 9

TCT-1

High number of angiographic significant lesions are FFR negative in STEMI patients with multi-vessel disease: preliminary insight into the COMPARE-ACUTE trial

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BACKGROUND Current guidelines deem percutaneous coronary intervention (PCI) of a non-infarct related artery (n-IRA) at the time of primary PCI (pPCI). This approach is being challenged by recent studies, which show benefits of complete rather than culprit vessel-only revascularization at the time of pPCI. However, these studies assessed grade of stenosis in the n-IRA by visual estimate. The impact of fractional-flow reserve (FFR) measurements during pPCI of n-IRA has not been assessed.

METHODS COMPARE ACUTE is an ongoing prospective, randomized strategy trial carried out at 22 sites across Europe and Asia. Patients are randomly allocated (2:1) to receive either FFR guided multi-vessel (MV) PCI vs. culprit vessel-only PCI with blinded FFR measurements of n-IRA lesions in the setting of STEMI. The primary study endpoint is MACCE defined as death, myocardial infarction, any revascularization, or cerebral accident at 12 months. FFR measurements were done directly after completion of pPCI in all n-IRA with visual estimate of $\geq$50% stenosis. Positive FFR measurement was defined as $\leq$0.80 under maximal hyperemia.

RESULTS From July 2011 to April 2015, 728 STEMI patients undergoing primary PCI with multi-vessel disease were enrolled. Mean age was 62.0 $\pm$ 10.4 (77.1% male) with Killip class I at presentation in 95.3%. In 37.3% the pPCI was performed in the LAD, 44.0% in the RCA and 18.7% in the RCX. Successful pPCI defined as TIMI 3 flow was achieved in 95.8%. FFR-measurements of 1000 n-IRA vessels (1023 lesions) were performed in the LAD in 40.1%, RCA 25.8% and RCX 34.1%. In 54% the FFR measurement of a n-IRA lesion was negative and in 40% positive, 6% had no data available yet. On patient level 57% of the STEMI patients with angiographic multi-vessel disease had no hemodynamic significant lesions in the n-IRA.

CONCLUSIONS This preliminary data from the COMPARE ACUTE trial indicates that a high portion of lesions found in non-infarct related arteries with visual estimated stenosis of >50% are FFR negative. This aspect should be taken into account during the debate on multi-vessel primary PCI in STEMI patients.

CATEGORIES CORONARY: Acute Myocardial Infarction

KEYWORDS Fractional flow reserve, Multivessel disease, ST elevation myocardial infarction

TCT-2

Early or late intervention in patients with transient ST-segment elevation acute coronary syndromes: subgroup analysis of the ELISA-3 trial

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BACKGROUND Current guidelines recommend immediate revascularization in patients with ST-segment elevation acute coronary syndrome (STE-ACS). However, to date no evidence exists for optimal treatment of ACS patients with initial ST elevation but normalization of ST-segment elevation and anginal symptoms before revascularization (transient ST-segment elevation or T-STE ACS). We performed a pre-defined subgroup analysis of the ELISA-3 trial to evaluate incidence and characteristics of patients with T-STE ACS and to compare outcome of an early to a late invasive strategy.

METHODS The ELISA-3 study is a prospective, multicentre trial in which 542 patients hospitalized with high risk NSTE-ACS were randomized to either an early (angiography and revascularization if appropriate < 12h) or late invasive strategy (>48 h after randomization). All patients were treated according to the guidelines. Incidence and characteristics of patients with T-STE ACS were investigated and effect of an early to a late invasive strategy in terms of combined incidence of death, reinfarction and/or recurrent ischemia after 30 days and 2 years follow-up was compared.

RESULTS Transient ST elevation was seen in 129 (24.2%) patients before randomization. In patients with T-STE, mean age was lower (67.6 vs 71.4 y) and GRACE RISK score higher (142 vs 134). Incidence of the composite endpoint after 30 days did not differ significantly, but was lower after 2 years follow-up in patients with T-STE ACS (20.3 vs 32.0%, p=0.013), mainly driven by lower mortality (1.6 vs 9.5% p=0.004). No significant interaction was found between T-STE and treatment strategy on outcome. Within the group of patients with T-STE ACS, early treatment showed a trend towards a lower incidence of the combined endpoint after 30 days (5.8 vs 12.7%) and 2 years (18.8 vs 22.2%) follow up but these differences were not statistically significant (table 1). Enzymatic Infarct Size as assessed by a single cardiac Troponin T, measured at 72-96 hours after admission or at discharge was comparable.

Table 1. Clinical outcome after 30 days and 2 year follow-up in patients with transient ST-elevation ACS randomized to either an early or late invasive strategy.

	Total	Early treatment (n=71)	Late treatment (n=58)	p-value	RR (95% CI)
30 d follow-up					
Combined incidence of death, re-infarction or recurrent ischemia (PEP)	8.9%	5.8%	12.7%	.213	0.46 (0.14-1.48)
death	0%	0%	0%		NA
MI	0%	0%	0%		NA
recurrent ischemia	8.9%	5.8%	12.7%	.213	0.46 (0.14-1.48)
Enzymatic infarct size (single cardiac TropT) ug/l med (IQR)	0.27 (0.11-0.86)	0.27 (0.07-0.55)	0.27 (0.12-1.12)	.100	
bleeding	22.6%	26.1%	18.2%	.296	1.44 (0.72-2.85)
major bleeding	12.1%	15.9%	7.3%	.141	2.19 (0.74-6.51)
2 y follow-up					
combined incidence of death, re-infarction or recurrent ischemia	20.3%	18.8%	22.2%	.644	0.85 (0.42-1.71)
death	1.6%	2.9%	0%	.503	NA
MI	4.1%	4.3%	3.7%	1.00	1.17 (0.20-6.78)
recurrent ischemia	16.3%	14.5%	18.5%	.548	0.78 (0.35-1.74)

PEP=Primary End Point; IQR = Inter Quartile Range

CONCLUSIONS In this population of high risk NSTE-ACS patients, transient ST elevation was present in 24% of patients. Clinical outcome at long term follow-up was better as compared to patients without T-STE. An early invasive strategy in patients with T-STE ACS was feasible but not superior to a late invasive strategy in terms of the combined primary endpoint of death, reinfarction and/or recurrent ischemia. Infarct size was comparable. Postponement of intervention for prolonged pharmacological pretreatment did not result in improved outcome. Prospective, randomized trials are necessary for more evidence in the optimal treatment of these patients. ISRCTN register 39230163

CATEGORIES CORONARY: Acute Coronary Syndromes

KEYWORDS Invasive strategy, Non-ST-segment elevation acute coronary syndromes, Timing

TCT-3

Thrombus aspiration in patients with large anterior myocardial infarction: a TASTE trial substudy

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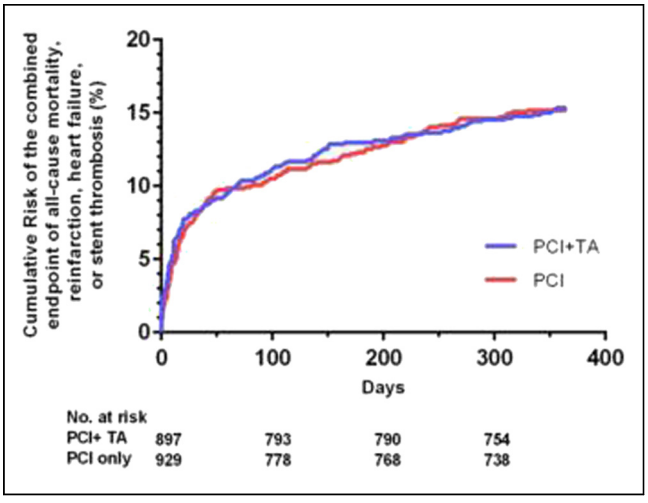
BACKGROUND The Thrombus Aspiration in ST-Elevation myocardial infarction in Scandinavia (TASTE) trial did not demonstrate clinical benefit of thrombus aspiration (TA). High risk patients might benefit from TA.

METHODS The TASTE trial was a multicenter, randomized, controlled, open-label trial obtaining endpoints from national registries. Patients (n=7244) with ST segment elevation myocardial infarction (STEMI) undergoing percutaneous coronary intervention (PCI) were randomly assigned 1:1 to TA and PCI or to PCI alone. We assessed the one-year clinical effect of TA in a sub-group with potentially large anterior STEMI: mid or proximal left anterior descending coronary artery infarct lesion, TIMI 0-2 flow, and symptom-onset-to-PCI time ≤5 h. In this sub-study, patient eligibility criteria corresponded to that of the Intracoronary Abciximab and Aspiration Thrombectomy in Patients with Large Anterior Myocardial Infarction (INFUSE-AMI) study.

RESULTS In total, 1826 patients fulfilled inclusion criteria. All-cause mortality at one year of patients randomized to TA did not differ from those randomized to PCI only [hazard ratio (HR) 1.05, 95% confidence interval (CI) 0.74-1.49, P=0.77]. Rates of rehospitalization for myocardial infarction (MI), heart failure (HF), and stent thrombosis (ST) did not differ between groups (HR 0.87, 95% CI 0.51-1.46, P=0.59; HR 1.10 95% CI 0.77-1.58, P=0.58; and HR 0.75, 95% CI 0.30-1.86, P=0.53; respectively). This was also the case for the combined endpoint of all-cause mortality, and rehospitalization for MI, HF, or ST (HR 1.00, 95% CI 0.79-1.26, P=0.99).



CONCLUSIONS In patients with STEMI and large area of myocardium at risk, TA did not affect outcome within one year.

CATEGORIES CORONARY: Thrombus / Thrombectomy and Embolic Protection

KEYWORDS Coronary artery disease, STEMI, Thrombus aspiration

TCT-4

Spontaneous Coronary Artery Dissection in Women and Association with Hormonal Stressors

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BACKGROUND Spontaneous coronary artery dissection (SCAD) is an infrequent but important cause of myocardial infarction (MI) in women. Chronic exposure to hormonal therapy, fluctuation in hormonal levels, and a history of multiple pregnancies had been postulated to predispose to SCAD. However, these were not well described in the literature.

METHODS Women with SCAD who have consented and are prospectively followed in our Vancouver General Hospital SCAD registries are included in this study. Their background hormonal exposure, pregnancy, and gynecological histories were extracted from questionnaires, clinical histories, and medical records. These were correlated to in-hospital and long-term outcomes.

RESULTS We included 187 women with SCAD, with mean age 52.6 ± 8.7 years. The majority were Caucasian (83.4%) and 74.0% had fibromuscular dysplasia. All patients presented with MI. Mean number of pregnancy in this cohort was 2.5, with 45 (24.1%) and 25 (13.4%) having ≥4 and ≥5 pregnancies, respectively. Mean number of live births (parity) was 1.8, with 52 (27.8%) having ≥3 births, and 16 (8.6%) having ≥4 births. There were 3 post-partum SCAD (<1 year) and they were still breastfeeding. In terms of hormonal therapy, 28 (15.0%) were actively on hormonal therapy; 5 (2.7%) had prior fertility treatment, 51 (27.3%) had hormone replacement therapy (HRT), 76 (40.6%) had oral contraception, and 36 (19.3%) had gynecological procedures. There were 107 (57.2%) post-menopausal women, and 23 (12.3%) were peri-menopausal at presentation. There was no death during acute SCAD admission, but 3 died at follow-up (mean 4.1 ± 3.9 years), and 36 (19.3%) had recurrent SCAD. Patients actively on hormones had higher rate of recurrent SCAD (32.1% vs. 15.8%, p=0.039). There was a higher recurrent MI rate in premenopausal women during index admission (8.9% vs. 1.9%, p=0.037). There was no significant difference in in-hospital and follow-up events in women with past hormonal therapy, post-partum women, or those with parity ≥4 or gravida ≥5.

CONCLUSIONS Significant proportion of women with SCAD had exposure to hormonal therapy or had multiple pregnancies/births. Patients actively on hormonal therapy appeared to have higher recurrent SCAD events at follow-up.

CATEGORIES CORONARY: Acute Myocardial Infarction

TCT-5

Timing for transcatheter closure of ventricular septal rupture after acute myocardial infarction

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BACKGROUND Percutaneous closure of ventricular septal rupture (VSR) complicating acute myocardial infarction appears to be safe and effective treatment, but there is no unified opinion about the intervention timing for transcatheter closure due to the lack of large-scale prospective clinical research.

METHODS Between October 2010 and April 2013, 43 consecutive ST-elevation myocardial infarction (STEMI) complicating VSR patients who had indications of primary transcatheter closure were enrolled in our study. We excluded cardiogenic shock patients. These patients were randomly assigned to either the early intervention group (n=21) or the late intervention group (n=22). We applied percutaneous closure of VSR within 2 weeks after STEMI for patients in early intervention group, while we applied percutaneous closure of VSR in 6 weeks after STEMI for patients in late intervention group. We recorded the procedure-related complications and followed up these patients for 2 years.