Methods: Data on hospitalizations for STEMI from 2000 through 2010 were extracted from hospital discharge record databases from all hospitals in Lombardia (a Northern Italy region with high density population). Main outcome measures were in-hospital mortality and treatment modality by sex. Treatment modalities included medical therapy alone or an invasive approach, the latter consisting of coronary angiography alone, percutaneous coronary intervention (PCI), or coronary artery bypass graft surgery. Multivariable logistic regression was performed to assess the impact of female sex and of treatment modality on mortality after adjusting for age, and comorbidities.

Results: A total of 92807 patients with STEMI, 66.4% men and 33.6% women were enrolled. Women were older than men (mean 75.1 yrs vs 64.1 yrs, p<0.0001) and had a higher prevalence of chronic renal failure (p<0.001). In-hospital mortality presented a small decrease from 7.5% in 2000 to 6.3% in 2010 among men, while it remained higher and substantially constant over time among women (16.4% in 2000, 16.2% in 2010). The use of an invasive approach increased over time in both sexes (from 55% in 2000 to 91% in 2010 in men and from 36% in 2000 to 70% in 2010 in women). The use of PCI increased from 32% in 2000 to 82% in 2010 in men; and from 21% in 2000 to 57% in 2010 in women. At multivariable regression, an invasive approach (odds ratio (OR) 0.23, 95% confidence interval (CI), 0.21-0.25, p<0.001) was associated with a significant reduction in mortality, while female sex was not a predictor of mortality (OR 0.96, P=0.18).

Conclusions: In-hospital mortality remains higher in women than in men, although female sex is not a significant predictor of mortality. Despite temporal increases in the use of an invasive approach, women are more often treated conservatively.

TCT-246

Characterization of the Actuarial Daily Ischemic Risk in the First Year Following ST-Segment Elevation Myocardial Infarction: Analysis from the HORIZONS-AMI Trial

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Background: The risk for recurrent ischemic events following ST-segment elevation myocardial infarction (STEMI) gradually declines. However, current guidelines suggest consistent therapy from presentation out to 12 months. We sought to characterize the actuarial daily ischemic risk (ADIR) in the 12 months year after STEMI.

Methods: Ischemic event rates for all 3602 patients enrolled in the prospective HORIZONS-AMI trial were categorized according to the timing of their occurrence in three groups: Group 1: during index hospitalization, Group 2: from hospital discharge to 30 days, and Group 3: from 30 days post hospital discharge to 1 year. Ischemic events included: All-cause death, cardiovascular (CV) death, non-CV death, re-infarction (MI), definite ST and the composite of CV death, MI or definite ST. The ADIR for each event was calculated based on the actual patient days of follow-up for each group.

Results: Highly significant reductions in ADIR were observed as patients transitioned from Group 1 to Groups 2 and 3 respectively (Table). The degree of ADIR reduction approached or exceeded a full order of magnitude for all events except for non-CV death. Accordingly, the relative risk for the composite of CV death, MI or definite ST was 15.20 (11.39 - 20.27, p<0.0001) for Group 1 vs. Group 2, 6.31 (4.62 - 8.62, p<0.0001) for Group 2 vs. Group 3 and 95.94 (76.06 - 121.02, p<0.0001) for Group 1 vs. Group 3.

Conclusions: Conclusions: The risk for CV death and recurrent ischemic events following an index STEMI treated with primary PCI dramatically declines following hospital discharge out to the first 30 days and declines even further between day 30 and one year. These data suggest that a tailored approach to anti-ischemic protection, with more potent agents administered in the acute and sub-acute phases and less potent agents (with lower bleeding potential) administered after 30 days, warrants investigation.

Table. Actuarial daily ischemic risk (ADIR) in 3 successive periods after index hospitalization for STEMI

ENDPOINT	Index hospitalization	Discharge to 30 Days	30 Days to 1 year
All-cause death	78/21510 (0.3626%)	22/104397 (0.0211%)	59/1220907 (0.0048%)
CV death	71 / 21510 (0.3301%)	17 / 104397 (0.0163%)	29 / 1220907 (0.0024%)
Non-CV death	7 / 21510 (0.0325%)	5 / 104397 (0.0048%)	30 / 1220907 (0.0025%)
Re-infarction (MI)	44 / 21510 (0.2046%)	27 / 104397 (0.0259%)	84 / 1220907 (0.0069%)
Definite ST	76 / 21510 (0.3533%)	17 / 104397 (0.0163%)	0 / 1220907 (0.0000%)
CV death + MI + Definite ST	191 / 21510 (0.8880%)	61 / 104397 (0.0584%)	113 / 1220907 (0.0093%)

Trend p-values <0.0001 for all endpoints. All pairwise p-values <0.0001, except p=0.16 for Group 2 vs. Group 3 non-CV death.

TCT-247

Effects on Infarct Size, Microvascular Obstruction, Left Ventricular Volumes and Function of Manual Thrombus Aspiration and Rheolytic Thrombectomy in Acute Myocardial Infarction: 1-year SMART-MRI substudy

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Background: We sought to analyze in ST-elevation myocardial infarction (STEMI) patients the impact of rheolytic thrombectomy (RT) in comparison to manual thrombus aspiration (MTA) on extension of microvascular obstruction (MVO) and infarct size (IS) as well as on 1-year left ventricular (LV) volumes and ejection fraction (EF) by cardiac magnetic resonance imaging (MRI).

Methods: Eighty STEMI patients (≤6 hours from symptom onset) reperfused by primary angioplasty with routine abciximab therapy were randomly allocated (1:1) to a RT or MTA. MRI was performed within 10 ± 6 days in 37 patients (19 RT, 18 MTA), and after 1 year in 19 patients (9 RT). IS and MVO were measured 15 min after gadolinium injection with late enhancement sequences and were analyzed quantitatively (as percentage of the left ventricular mass –gr/LV mass-) at a core laboratory blinded to randomization.

Results: Baseline clinical characteristics were similar between the RT and MTA groups, as well as baseline TIMI thrombus grade (4.47 ± 0.84 vs. 4.67 ± 0.76, p=0.453). After thrombectomy, in RT compared with MTA group the thrombus grade decreased to 1.11 ± 1.04 vs. 2.17 ± 1.29 (P=0.04), and after infarct artery stenting TIMI 3 flow was 100% vs. 89% (P=0.204), and ST-elevation resolution greater than 70% at 60 minutes was 89% vs. 72% (P=0.198), respectively. RT compared with MTA group did not reduced significantly myocardial IS [12.2% (6.4-22.1) vs. 19.0% (7-28.5) , P=0.224] as well as the extent of MVO [0.0% (0.0-0.17) vs. 0.6% (0.0-1.4), P=0.117], but a trend towards a lower incidence of MVO was observed (16% vs. 44%, P=0.056). At 1-year, the IS did not change [RT 13.2% (6.4-22.1) vs. MTA 11.4% (6.5-27.8), P=0.253] and the recovery (baseline-1year) of LV EF was not different in both groups (RT 1.9±4.5% vs. MTA 1.1±8.3%, P=0.626), with a reduction of LV volumes found only in RT group (EDV: RT -9.3±15 ml vs. MTA 9±29.8 ml, P=.115; ESV: RT -8.5±15.2 ml vs. MTA 3.1±20.3 ml, P=.180, respectively).

Conclusions: In setting of STEMI, at 1-year RT in comparison to MTA did not reduce significantly the IS. However a more favorable change of LV volumes were found, likely due to a more effective thrombus removal and a lower incidence of MVO by RT.

TCT-248

Immediate Stenting in Comparison with Surgical Revascularization Strategy in Patients with Non-ST Elevation Acute Coronary Syndrome and Multivessel Coronary Artery Disease - The MILESTONE Registry.

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Background: The optimal revascularization strategy in patients with multivessel and left main coronary artery disease (MVD, LMD) presenting with non-ST acute coronary syndrome (NSTE-ACS) is undetermined.

Methods: In this multicenter, prospective registry, 4566 patients with non-ST elevation myocardial infarction (NSTEMI), unstable angina and MVD including LMD were enrolled. Following angiography, 3033 patients were assigned for stenting (10.3% DES), whereas 1533 for CABG. The complete follow-up on mortality was obtained at 3 years.

Results: In the overall population, patients assigned for PCI were younger (64.4±10 vs. 65.2±9 p=0.03), more frequently presented with NSTEMI (32.0 vs. 14.5%; p=0.01), cardiogenic shock (1.5 vs. 0.7% p<0.01) history of prior PCI (13.1 vs. 5.5%; p<0.01) and CABG (10.6 vs. 4.6%, p<0.01). The Euroscore and TIMI risk score were slightly higher in PCI patients (5.36±2.3 vs. 5.16±2.0 and 3.87±1.0 vs. 3.79±0.9 respectively, p<0.01). Patients consigned to CABG more often presented with triple and LMD (82.2 vs. 33.8% and 13.7 vs. 2.4%; p<0.01). Otherwise, proximal LAD was more often stented (21.5 vs. 11.1%; p<0.01). After adjustment 929 well-matched pairs were selected. Early mortality was lower after PCI prior to matching (2.1 vs. 3.1%; p<0.01), whereas after balancing, no difference was found (2.5 vs. 2.8%; p=0.62). Three year survival was in favor of PCI when compared to surgery prior (87.5 vs. 82.8%, HR: 1.44, 95%CI: 1.2-1.7) and after matching (86.4 vs. 82.3%, HR 1.33, 95%CI:1.05-1.7 and p=0.01). Stenting was associated with

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significantly better outcome in the following subgroups: age>65, female, UA, euro-score>5, TIMI risk score>4, DES and two vessel disease.

Conclusions: Based on this large registry data of patients with NSTE-ACS and MVD, stenting was associated with lower risk of mortality at long term follow up when compared to surgical revascularization strategy The subgroup analysis highlighted improved outcomes with PCI in high clinical risk cohorts.

TCT-249

Glycoprotein IIb/IIIa receptor inhibitors versus bivalirudin in patients with ST-segment elevation myocardial infarction

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Background: The GOTHIA CARDIOVASCULAR initiative consist of healthcare providers of which four have a PCI department in Region Västra Götaland, Sweden. The data was collected from SCAAR (Swedish Coronary Angiography and Angioplasty Registry). GP IIb/IIIa was the standard treatment during PCI in patients with STEMI until the HORIZONS-AMI study was published 2008. After 2008 a gradual switch to bivalirudin has occurred. The aim of this observational study was to compare the outcome associated with treatment with glycoprotein IIb/IIIa receptor inhibitors (GP IIb/IIIa) and bivalirudin during percutaneous coronary intervention (PCI) in patients with ST-segment elevation myocardial infarction (STEMI).

Methods: The primary endpoint was mortality after 180 days. Missing data were imputed using multiple imputation method. Survival was analysed with logistic regression adjusted for age, gender, smoking status, diabetes, hypertension, hyper-lipidaemia, prior myocardial infarction, prior PCI, prior coronary by-pass surgery, oral platelet inhibition prior to PCI, vascular access site, severity of coronary disease, number of stents used, mean diameter of the stent used, drug-eluting stents, cardiogenic shock, completeness of revascularisation, and procedural success.

Results: Between 2004-2011, 3067 patients were treated with GP IIb/IIIa and 2688 patients were treated with bivalirudin during primary PCI. The adjusted odds ratio (OR) for bivalirudin compared with GP IIb/IIIa was 1.26 (95% CI 0.98-1.61 p=0.07).

Conclusions: In this observational study there was no statistical difference in 180 day mortality in patients treated with bivalirudin compared with gpIIb/IIIa receptor inhibitors. However there was a trend in favour of gpIIb/IIIa inhibitors.

TCT-250

Left Ventricular End-Diastolic Pressure Predicts Early Myocardial Recovery in Patients with Acute Myocardial Infarction Undergoing Percutaneous Coronary Intervention

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Background: Little is known regarding the various clinical predictors of myocardial recovery in patients presenting with acute myocardial infarction (AMI) undergoing percutaneous coronary intervention (PCI). Elevated left ventricular end-diastolic pressure (LVEDP) is commonly observed during AMI, but few studies have examined the prognostic value of this index. We hypothesized that lower LVEDP at presentation would be predictive of improved myocardial recovery at 3 months.

Methods: Clinical and echocardiographic data were collected on 1,211 patients presenting to a tertiary care hospital with AMI who underwent PCI between January 2007 and December 2008. Of the total group, there were 254 patients who had both a baseline and follow up echocardiogram performed with 156 patients having a depressed left ventricular ejection fraction (EF) of < 50% on baseline echocardiogram. Patients were then grouped by LVEDP < 22 or ≥ 22 mmHg based on the median LVEDP of our study population. Myocardial recovery was defined as ≥ 5% increase in EF on follow-up echocardiogram.

Results: There were 116 patients who were included in this study, of which 53 (45.7%) had LVEDP < 22 and 63 (54.3%) had LVEDP ≥ 22 (mean LVEDP 17 vs 28 mmHg respectively, p<0.001). There was no difference in the EF between the two groups on baseline echo (38% vs 39%, p=0.326). However at follow up, patients in the low LVEDP group had a higher EF (45% vs 39%, p=0.019) and a greater percentage of those patients showed myocardial recovery (60.4% vs 38.1%, p=0.017). In multivariate logistic analysis, LVEDP (OR 0.90, 95% CI:0.84-0.97), prior MI (OR 0.12, 95% CI:0.02-0.82), and TR grade (OR 4.31, 95% CI:1.25-14.90) were independent predictors of myocardial recovery.

Conclusions: Among patients presenting with AMI undergoing primary PCI, lower baseline LVEDP was an independent predictor of myocardial recovery. LVEDP is a simple and routinely obtained marker that may provide prognostic information in the setting of AMI.

TCT-251

ECG Findings in ST-Elevation Myocardial Infarction from Culprit Left Main Coronary Artery Disease: A Multicenter Registry Study

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Background: ST-elevation MI (STEMI) from culprit left main (LM) coronary artery lesions is associated with high mortality and morbidity. The electrocardiographic (ECG) findings in this presentation are not well described.

Methods: A retrospective analysis of all of STEMI or STEMI-equivalent (ventricular fibrillation, ventricular tachycardia or resuscitated cardiac arrest) cases (n=75) with culprit LM lesions admitted to 5 academic hospitals in the United States and Singapore was performed. Patients with prior LM coronary intervention, prior CABG, or prior known LBBB were excluded. ECG and angiographic analysis were performed in a blinded fashion.

Results: Among 75 cases, 12 presented as VT, VF, or LBBB. The findings from the remaining 63 cases of STEMI are summarized in Table 1. The most common ECG findings were ST elevation in the anterior leads (73%, n = 46) with reciprocal ST depressions in the inferior (57%, n=36) and lateral (51%, n=32) leads. There was infrequent concomitant lateral ST (24%, n=15) or inferior ST (8%, n=5) elevations. ST elevations in aVR were present in only 57% of the ECGs analyzed. The mean number of contiguous leads with STEs is 3.8 ± 2.3.

Variable	LM STEMI
	N=63
Patient Characteristics	
Age, years	64 (37-94)
Male (%)	59 (80)
BMI, kg/m2	27 (17-39)
Diabetes (%)	31 (42)
CRI Non-HD (%)	17 (23)
ESRD on HD (%)	6 (8)
Prior/Active smoker (%)	33 (45)
Dyslipidemia (%)	44 (60)
Hypertension (%)	53 (72)
Stroke (%)	9 (12)
Prior MI (%)	10 (14)
Prior PCI (%)	13 (18)
Aspirin (%)	48 (65)
Thienopyridine (%)	18 (24)
Beta Blocker (%)	19 (26)
Statin (%)	29 (39)
Creatinine, mg/dL	1.7 ± 2.3
In hospital mortality (%)	20 (27)
ECG Characteristics	
Anterior STE (%)	46 (73)
Lateral STE (%)	32 (51)
Inferior STE (%)	5 (8)
aVR STE (%)	36 (57)
Inferior STD (%)	36 (57)
Lateral STD (%)	15 (24)
Leads/ECG with STE (Mean ± SD)	3.8 ± 2.3

Conclusions: The traditional pattern of anterolateral ST elevation (STE) with inferior ST depressions (STD) in acute LM STEMI while common, is not the sole finding in this cohort. Furthermore, STE in aVR has only a modest association with LM STEMI. Further analysis correlating ECG findings with angiographic characteristics is underway and will be presented.