Conclusions: ACT values were not independently associated with in-hospital ischemic or bleeding events or 1-year cardiovascular events in a large population of patients undergoing PCI.

TCT-470

Antithrombotic Therapy during Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction: Insights from Direct Comparison and Mixed Treatment Comparison Analysis of Randomized Trials

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Background: In patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI), unfractionated heparin (UFH), low molecular weight heparin (LMWH), fondaparinux, or bivalirudin are treatment options. The relative benefits of each of these regimen merits more systematic investigation.
Methods: We conducted a Medline/EMBASE/CENTRAL search for randomized trials (RCT) comparing parenteral antithrombotic therapies for patients undergoing primary PCI. Five treatment groups were identified: UFH+Glycoprotein IIbIIIa inhibitor (GPI), UFH, bivalirudin, fondaparinux or LMWH+GPI. The primary ischemic outcome was short-term (in-hospital/30-days) major adverse cardiovascular event (MACCE); the primary bleeding outcome was short-term major bleeding.
Results: We identified 23 RCTs that enrolled 22899 patients. In the MTC models, when compared with UFH+GPI, UFH (OR=1.48; 95% CI 1.18-1.86), bivalirudin or fondaparinux (numerically higher) were associated with higher MACCE. Similarly, when compared with LMWH+GPI, UFH (OR=2.63; 95% CI 1.28-5.26), bivalirudin (OR=2.27; 95% CI 1.09-4.76) and fondaparinux (OR=3.12; 95% CI 1.27-7.69) were associated with a higher MACCE. LMWH+GPI, followed by UFH+GPI, bivalirudin, UFH and fondaparinux were the hierarchy for treatment efficacy for MACCE (highest to lowest rank). For bleeding, when compared with UFH+GPI, both UFH (OR=0.70; 95% CI 0.55-0.89) and bivalirudin (OR=0.61; 95% CI 0.47-0.79) were associated with lower major bleeding. Bivalirudin, followed by UFH, LMWH+GPI, UFH+GPI and fondaparinux were the hierarchy for treatment safety (highest to lowest rank). Results were similar in direct comparison meta-analyses: bivalirudin was associated with a 37% increase in MI, 44% increase in urgent revascularization, and an 81% increase in stent thrombosis when compared with UFH or UFH+GPI but with a 43% decrease in major bleeding when compared with UFH+GPI with no difference when compared with UFH alone.
Conclusions: In patients undergoing primary PCI, UFH+GPI and LMWH+GPI were most efficacious with the lowest MACCE rate, whereas bivalirudin was safest with the lowest bleeding.

TCT-471

Comparison of Bivalirrudin and Heparin use for Acute Myocardial Infarction: a Meta-Analysis of the Randomized Trials

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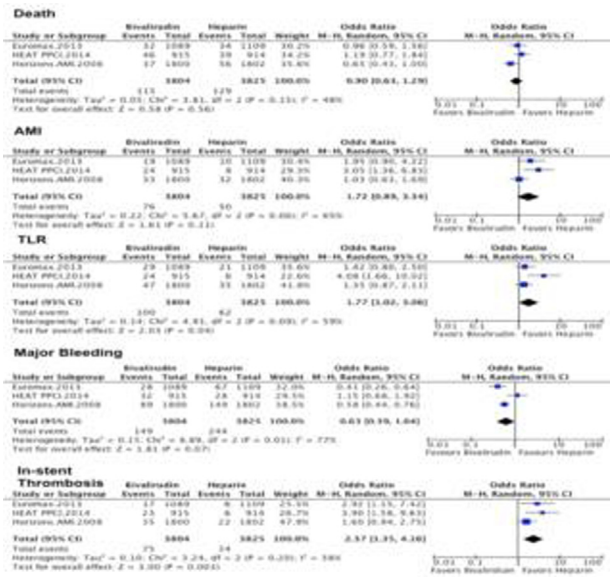
Background: The use of anticoagulants in the setting of acute myocardial infarction can lead to improvement of short-term survival by costing the increase of bleeding risk. We performed a meta-analysis of all randomized data that has evaluated the clinical outcomes among those patients admitted for acute STEMI and that received either heparin or bivalirudin.
Methods: Pub Med, Chocrane and Scopus were systematically searched up to May 2014. Subjects of analysis were 30 days mortality, AMI, Target Lesion Revascularization, major revascularization, and in-stent thrombosis. We used Fixed or Random Effect analysis using the Cochrane Handbook of Systematic Reviews.
Results: A total of 3 studies provided a total of 7629 patients, being 3804 in the bivalirudin group and 3825 patients in the heparin group. There was a strong trend (p=0.11) towards decreased AMI in the heparin group, with associated significant decrease of TLR and in-stent thrombosis (p< 0.05). Major bleeding trended towards the heparin group (Figure 1).
Conclusions: Our analysis suggests that heparin might be associated with better outcomes at post STEMI event, although there was no mortality benefit. Some of those benefits might be due to decreased in stent thrombosis. Therefore large randomized studies are warranted.



Pharmacotherapy - GPIIb/IIIa inhibitors

Washington Convention Center, Lower Level, Hall A

Saturday, September 13, 2014, 5:00 PM–7:00 PM

Abstract nos: 472-473

TCT-472

Impact of Excess Dosing of Eptifibatide During PCI for ACS: A Pooled Analysis from the HORIZONS-AMI and ACUITY Trials

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Background: Excess dosing of antithrombotic agents has been associated with adverse outcomes. To date, dosing errors have not been studied in pts specifically undergoing percutaneous coronary intervention (PCI) for acute coronary syndromes (ACS).
Methods: Analysis was performed in pts who received recommended (labeled dosing) vs. excess eptifibatide bolus or infusion doses during PCI in the HORIZONS-AMI and ACUITY trials. Adverse outcome rates were assessed. Multivariable analysis was performed to determine predictors of excess dosing and adverse events.
Results: Of 5,287 pts (840 STEMI, 4,447 NSTEACS) treated with eptifibatide, 543 (10.3%) were administered doses outside the recommended range (including in 319 of 574 pts (56%) with renal dysfunction [creatinine clearance < 50 mL/min]. Predictors of excess dosing included STEMI presentation, baseline creatinine clearance, baseline hematocrit, and hypertension. Pts who received excess dosing experienced higher rates of adverse outcomes (Table). By multivariable analysis, excess dosing was independently associated with 30-day non-CABG major bleeding (HR [95%CI] = 1.38 [1.05, 1.82], p=0.02) but not 30-day or 1-year all-cause mortality (HR [95%CI] = 1.47 [0.79, 2.74], p=0.22, and 1.26 [0.84, 1.88], p=0.27, respectively].
Conclusions: In this large-scale study, excess dosing of eptifibatide during PCI for ACS was common (even in the clinical trial setting), and was an independent predictor of major bleeding but not early or late mortality. Quality control efforts to ensure proper dosing may improve outcomes in high-risk ACS pts.