Cardiac and Vascular Surgery

Washington Convention Center, Lower Level, Hall A

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

Abstract nos: 121-123

TCT-121

Relationship Between On-treatment Platelet Reactivity Prior to Coronary Artery Bypass Surgery and In-Hospital Major Bleeding The Surgical Timing based On Platelet Reactivity for Coronary Artery Bypass Graft surgery (STOP-CABG) trial

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Background: Use of aspirin plus thienopyridine increases bleeding risk of coronary artery bypass graft (CABG) surgery. In STOP-CABG trial we prospectively evaluated the association between the pre-operative platelet function testing by different assay methods on the occurrence of post CABG bleeding.
Methods: 81 patients undergoing CABG within 5 days of thienopyridine discontinuation were prospectively enrolled. On-treatment platelet reactivity was measured with Verify Now (VN) P2Y12 assay, Vasodilator Stimulated Phosphoprotein Phosphorylation (VASP), Light Transmittance Aggregometry (LTA) with 5 and 20 μM of ADP and MAADP by thrombelastography. The primary endpoint was in-hospital major bleeding (IHMB).
Results: IHMB occurred in 38 patients (47%). Median VASP PRI (55.2 vs. 62.5, p=0.003), LTA ADP 5μM (39 vs. 49, p=0.002), LTA ADP 20μM (48.5 vs. 65, p=0.002) and MA ADP mm (40.4 vs. 50.5, p=0.03) was significantly lower in the group with IHMB compared to the group with no major bleeding. In a multivariable logistic regression analysis VASP PRI (OR: 0.96, 95% CI: 0.94-0.99), LTA ADP 5μM (OR: 0.94, 95% CI: 0.91-0.98), LTA ADP 20μM (OR: 0.94, 95% CI: 0.90-0.98) and MA ADP (OR: 0.96, 95% CI: 0.93-1.00) remained as strong correlates of IHMB.VN PRU < 198, VASP PRI < 65, LTA ADP 5 μM < 43, LTA ADP 20 μM < 57 and MA ADP < 46 mm were predictive of occurrence of IHMB.

	Major bleeding present (Median [IQ range])	Major bleeding absent (Median [IQ range])	p Value
VN PRU	198 [156-271]	221.5 [195-275]	0.09
VASP PRI	55.2 [25-64]	62.5 [52.5-74.9]	0.003
LTA ADP 5μM	39 [31.5-49]	49 [43-56]	0.002
LTA ADP 20μM	48.5 [43-65.5]	65 [55-72]	0.002
MA $_{ADP}$ (mm)	40.4 [28.5-55.3]	50.5[42-58.8]	0.03

Conclusions: On-treatment platelet reactivity testing performed on the day of CABG surgery is able to predict the occurrence of post-operative IHMB. This may help clinicians to better manage the timing of CABG after thenopyridine cessation.

TCT-122

Clinical Outcome in Patients Undergoing Surgical or Percutaneous Revascularization Associated to Valve Surgery

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Background: Patients affected by VHD associated to CAD have a poor short-term prognosis. Even though guidelines recommend traditional valve surgery associated to CABG, it provides limited benefits and a high incidence of short-term complications. Less invasive strategies (i.e. hybrid techniques or PCI + TAVR) have been recently suggested, with interesting results. Aim of our study was to compare the outcomes of these strategies to standard treatment and to assess the accuracy of risk stratification scores in this setting.
Methods: From 2011 to 2013, 305 patients underwent valve surgery + coronary revascularization. According to the Heart Team suggestions, 225 pts underwent CABG + valve surgery (G1), 30 pts PCI + valve surgery (G2) and 50 pts PCI + TAVR (G3). In each patient we evaluated risk scores (EuroSCORE and STS Score), procedural data and short-term outcomes. Endpoints were defined as occurrence of MACE.
Results: Operative risk was similar in G1 (log EuroSCORE: 7.79 ± 6.1) and G2 (5.67 ± 3.82), but it was significantly higher in G3 (21.2 ± 13.88). Number of treated vessels was 1.57 ± 0.71, 1.3 ± 0.47 and 1.2 ± 0.45, respectively. PCI allowed a significant reduction of operative times (-30'): cross clamp time was 115.68 ± 37.02 min in G1 and 96.13 ± 42.24 in G2 (p 0.008), while ECC time was 150.05 ± 54.87 min vs 120.07 ± 45.94 (p 0.005). Relative Risk for the overall occurrence of a MACE compared to G1 was 0.46 in G2 (p 0.01) and 0.42 in G3 (p < 0.001).

Adverse Event	Group 1 CABG + AVR	Group 2 PCI + AVR	Group 3 PCI +TAVR	p
Death	5 (2.2%)	0 (0%)	0 (0%)	0.41
Acute Kidney Injury	101 (44.9%)	8 (26.7%)	6 (12%)	< 0.001
AKIN I	*72 (32%)*	*7 (23.1%)*	*5 (10%)*	*0.006*
AKIN 2	*16 (7.1%)*	*1 (3.3%)*	*1 (2%)*	*0.31*
AKIN 3	*13 (5.8%)*	*0 (0%)*	*0 (0%)*	*0.09*
Acute Myocardial Infarction	41 (18.2%)	2 (6.7%)	5 (10%)	0.13
Q wave	*15 (6.7%)*	*0 (0%)*	*0 (0%)*	*0.06*
Non Q Wave	*26 (11.6%)*	2 (6.7%)	5 (10%)	*0.71*
Neurological events	28 (12.4%)	0 (0%)	4 (8%)	0.09
Surgical wound / puncture site complications	32 (14.2%)	2 (6.7%)	5 (10%)	0.41
Need for transfusions	173 (76.9%)	17 (56.7%)	24 (48%)	< 0.001
Packed red blood cells	3.09 ± 3.35	1.53 ± 1.66	1.46 ± 2.37	< 0.001
Fresh frozen plasma	1.65 ± 3.57	0.2 ± 0.81	0.08 ± 0.57	< 0.001

Conclusions: These data prove that in patients affected by VHD and CAD hybrid strategies are safe and may improve outcomes compared to standard surgery, even in higher risk patients undergoing TAVR. Thus, we suggest a more extensive use of PCI combined with valve surgery. Furthermore, we suggest a revision of the current risk scores, as they were designed upon populations treated with conventional surgery and can't fit these new, evolving scenarios.

TCT-123

Incidence and Impact of Acute Kidney Injury in Patients with Acute Coronary Syndromes Treated with CABG: Insights from ACUITY/HORIZONS-AMI

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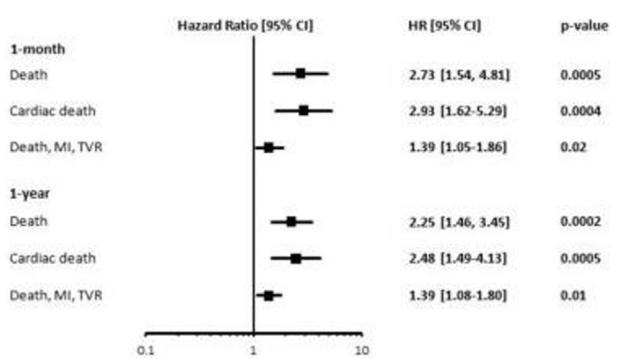
Background: Acute kidney injury (AKI) is a well-recognized predictor of morbidity and mortality following PCI. However, the impact of AKI on the outcome of patients with acute coronary syndromes (ACS) undergoing coronary artery bypass graft surgery (CABG) has not been established.
Methods: Of the 17,421 patients who presented with non-ST-segment elevation ACS or ST-segment elevation myocardial infarction (STEMI) enrolled in the ACUITY and the HORIZONS-AMI trials, 1,406 (8.0%) underwent CABG as principal treatment after coronary angiography. Endpoints were measured at 1 month and 1 year and included death, MI and ischemia-driven target vessel revascularization (TVR).
Results: AKI occurred during hospital admission in 449 (31.9%) of the 1,406 patients treated with CABG. Patients with vs. without AKI had 1-month and 1-year mortality of 6.7% vs. 2.2%, p< 0.0001, and 10.4% vs. 4.3%, p< 0.0001, respectively. Patients with vs. without AKI had 1-month and 1-year composite major adverse cardiac events (MACE; death, MI or TVR) of 21.2% vs. 14.8%, p=0.003, and 22.0% vs. 15.3%, p=0.002, respectively. By multivariable analysis, after adjustment for age, gender, race, diabetes, hypertension, and baseline creatinine clearance, AKI was an independent predictor of mortality (overall and cardiac-related), as well as MACE at both 1 month and 1 year following CABG (Figure).



Conclusions: AKI occurs in ~1 of every 3 patients with ACS treated with CABG, and is a powerful independent predictor of death and MACE. These data highlight the need for AKI prevention strategies in patients undergoing CABG.