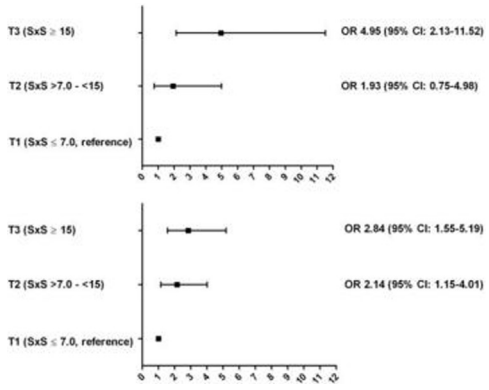
POSTERS

TCT-349

Predictive Value of the Syntax Score for the Occurrence of Periprocedural Myocardial Infarction in the TWENTE Trial

Kenneth Tandjung[1], Ming Kai Lam[1], Hanim Sen[1], Mounir W. Basalus[1], Gert van Houwelingen[1], Martin G. Stoel[1], Hans W. Louwerenburg[1], F. de Man[1], Gerard C. Linssen[2], Mark B. Nienhuis[3], Rogier Nijhuis[4], Clemens von Birgelen[5]
[1]Thoraxcentrum Twente, Medisch Spectrum Twente, Enschede, Netherlands, [2]Ziekenhuisgroep Twente, Almelo, Overijssel, [3]Streekziekenhuis Koningin Beatrix, Winterswijk, Overijssel, [4]Ziekenhuisgroep Twente, Hengelo, Netherlands, [5]Thoraxcentrum Twente & University of Twente, Enschede, Netherlands

Background: The Syntax Score (SxS) is a scoring system for the complexity of atherosclerotic disease burden in the coronary arteries. We investigated the predictive value of the SxS for the occurrence of a periprocedural myocardial infarction (PMI) according to the WHO definition and recently updated third universal definition of MI.
Methods: The SxS was calculated in 1,243 patients enrolled in TWENTE, a randomised trial in a real-world patient population treated with second-generation drug-eluting stents. In all patients, cardiac biomarkers and electrocardiograms were systematically assessed. PMI (i.e. an MI within 48 hours after PCI) was defined by the extended historical WHO definition and the third universal definition of MI.
Results: Patients were stratified in tertiles of SxS ≥15 (n=423), >7 and <15 (n=390), and <=7 (n=430). PMI according to the WHO definition occurred more frequently in patients of the highest SxS tertile group than in other tertile groups (7.3% vs. 3.1% vs. 1.6%, p<0.001). Similar findings were also seen for PMI according to the universal definition (9.9% vs. 7.7% vs. 3.7%, p<0.01). The SxS was a significant independent predictor of PMI according to both historical (adjusted OR 1.07, 95% CI: 1.04-1.10, p<0.001) and universal definition (adjusted OR 1.04, 95% CI: 1.01-1.06 p<0.001). In addition, 2-year all-cause mortality differed between SxS tertile groups (6.6% vs. 4.1% vs. 1.4%; p=0.001).
Conclusions: In a real world patient population treated with second-generation drug-eluting stents, the Syntax Score was able to stratify risk for the occurrence of peri-procedural MI and all-cause mortality.



TCT-350

Long term effect of sodium bicarbonate plus N-acetylcysteine in the setting of urgent PCI for STEMI

Antonio Maria Leone[1], Andrea Aurelio[2], Eloisa Basile[3], Pio Cialdella[3], Filippo Crea[4], Alberto R. De Caterina[5], Maria Bendetta Giannico[6], Roberto Patrizi[6], Antonio G. Rebuzzi[3], Dolores Russo[7], Francesco Summaria[6]
[1]Catholic University Sacred Heart, Rome, Rome, Italy, [2]Ospedale San Raffaele, Milano, Italy, [3]Institute of Cardiology, Catholic University of the Sacred Heart, Rome, Italy, [4]Institute of Cardiology, Catholic University of the Sacred Heart, Rome, Italy, Rome, Italy, [5]Istituto Scienze della Vita, Scuola Sant'Anna, Pisa, Italy, [6]Policlinico Casilino, Rome, Italy, [7]Catholic University of the Sacred Heart, Rome, Italy

Background: Contrast-induced nephropathy (CIN) represents a harmful complication of percutaneous coronary interventions (PCI) in the setting of ST-elevation myocardial infarction (STEMI),and its occurrence is associated with an increased incidence of Major Adverse Cardio-Cerebrovascular Events (MACCE).Several strategies of nephroprotection have been demonstrated to be effective in reducing the incidence of CIN in the acute setting,but no study has documented a long-term benefit in terms of reduced MACCE.Our aim was to demonstrate the efficacy of a strategy of hydration with sodium bicarbonate (SB) in addition to high-dose N-acetylcysteine (NAC) in the setting of urgent PCI for STEMI in reducing the incidence of long-term MACCE.
Methods: From June 2009 to September 2010,262 consecutive STEMI patients undergoing urgent PCI were prospectively enrolled and treated by SB-based hydration (154 mEq/L at 3 ml Kg-1 for 1 hour followed by 1 ml Kg-1 for 6 hours) (Group A).As controls,262 consecutive STEMI patients receiving 0.9% saline hydration (1 ml Kg-1 for 24 hours) before June 2009 were retrospectively enrolled (Group B).Both groups received high-dose NAC. CIN was defined as a ≥ 25% increase in serum creatinine at 48 hours.Primary composite endpoint at follow up (maximum 48, mean 22 ±20 months) was the incidence of MACCE expressed as the occurrence of death/myocardial infarction/stroke/need for revascularization.
Results: At baseline groups were comparable for clinical and procedural characteristics.The incidence of CIN was significantly reduced in group A as compared to group B (8.0 vs 14.1%, p=0.03, NNT 17).Primary combined end point at follow up was significantly reduced in group A as compared to group B (HR 0.65, C.I. 0.43-0.98; p=0.04 at Log Rank analysis).Similarly,SB-based hydration reduced also the following secondary endpoints: death/myocardial infarction/need for revascularization (HR 0.66 C.I. 0.44-0.99 p=0.04),death/myocardial infarction (HR 0.48 C.I. 0.26-0.90; p=0.02),death (0.46 C.I. 0.22-0.95; p=0.04).
Conclusions: SB hydration in addition to high-dose NAC in the setting of urgent PCI for STEMI reduces the long term rate of MACCE by a significant decrease in the rate of in-hospital CIN.

TCT-351

Predictors of Contrast Induced Nephropathy in Patients with Chronic Kidney Disease after Percutaneous Coronary Intervention

Ji-Hwan Kim[1], Seung-Hyuk Choi[1], Jin-Ho Choi[1], Hyeon-Cheol Gwon[1], Joo-Yong Hahn[1], Kyung Pyo Hong[1], Sang Hoon Lee[1], Jeong Euy Park[1], Young Bin Song[1], Jeong Hoon Yang[1]
[1]Samsung Medical Center, Seoul, Korea, Republic of

Background: Contrast-induced nephropathy (CIN), which is difficult to predict the occurrence, is a fatal complication in patients undergoing percutaneous coronary intervention (PCI). The aim of this study was to investigate the major predictors of CIN in those with chronic kidney disease (CKD) after coronary revascularization.
Methods: We enrolled consecutive 281 patients with CKD who had undergone PCI and retrospectively collected clinical, laboratory and angiographic data. CIN was defined as an increase in serum creatinine >25% or a decrease in the estimated glomerular filtration rate (eGFR) <25% from baseline in post procedural first 72 hours.
Results: Among all participants, CIN occurred in 50 (18%) patients. MI (54.0% vs. 29.9%, p=0.002) and shock (16.0% vs. 6.5%, p=0.042) were common in CIN patients than those without CIN. The patients who developed CIN had significantly higher V/CrCl (8.8 ± 8.7 vs. 5.8 ± 4.5, p=0.025) and lower eGFR (33.2 ± 15.6 vs. 39.9 ± 13.4, p=0.006) than those without CIN. Age, gender, the type of contrast media, LV EF, and the number of inserted stent were no significant differences between the two groups. CIN patients had a greater multivessel disease (88.0% vs. 72.7%, p=0.029) and disease of left main coronary artery (18.0% vs. 6.5%, p=0.021) than those without CIN. From the ROC curve analysis, the cutoff value of V/CrCl ratio to predict CIN was 6.0 (AUC=0.610, p=0.014). In multivariate logistic regression analyses, the development of CIN was strongly associated with female gender (adjusted HR 2.2: 1.1-4.6, p=0.028), MI (adjusted HR 2.8: 1.4-5.8, p=0.005), PCI for left main disease (adjusted HR 4.2: 1.5-11.8, p=0.008), and V/CrCl ≥6.0 (adjusted HR 3.8: 1.8-7.8, p<0.001) after adjusted for clinically and statistically important covariates.
Conclusions: Female gender, MI, PCI for left main disease, and V/CrCl ratio≥ 6.0 were major predictors of CIN in CKD patients undergoing PCI.

Table 1. Univariate and multivariate analysis of determinants of CIN in CKD patients after percutaneous coronary intervention

	Univariate analysis	Multivariate analysis			
	p value	β Coefficient	p value	Exp (B)	95% CI
Age ≥75	0.636	-0.345	0.349	0.7	0.3-1.5
Female gender	0.132	0.802	0.028	2.2	1.1-4.6
MI	0.002	1.036	0.005	2.8	1.4-5.8
DM	0.233	0.107	0.793	1.1	0.5-2.5
Type of contrast	0.641	0.190	0.595	1.2	0.6-2.4
V/CrCl ≥6.0	0.002	1.331	<0.001	3.8	1.8-7.8
Number of inserted stent (≥2)	0.753	-0.089	0.805	0.9	0.5-1.9
Shock	0.042	0.564	0.318	1.8	0.6-5.3
PCI for LM	0.012	1.424	0.008	4.2	1.5-11.8

MI = myocardial infarction; DM = diabetes; V/CrCl = the ratio of the contrast media volume to the creatinine clearance; PCI = percutaneous coronary intervention; LM = disease of left main coronary artery

TCT-352

Prognostic value of acute kidney injury immediately after primary percutaneous coronary intervention in patients with ST segment elevation myocardial infarction

Jang Hoon Lee[1], Myung Hwan Bae[1], Shung Chull Chae[1], Yongkeun Cho[1], Se Yong Jang[1], Jae Hee Kim[1], Sun Hee Park[1], Hun Sik Park[1], Dong Heon Yang[1]
[1]Kyungpook National University Hospital, Daegu, Korea, Republic of

Background: The pattern and prognostic impact of acute kidney injury (AKI) immediately after primary percutaneous coronary intervention (PCI) in patients with ST segment elevation myocardial infarction (MI) has not been well established.