Impact of Insurance Status on the Mortality Outcome of Patients With ST-Elevation Myocardial Infarction

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Background: The study evaluated the impact of health insurance status and mode of arrival to the emergency department (ED) on in-hospital outcome of patients with ST-elevation myocardial infarction (STEMI) undergoing primary percutaneous intervention.

Methods: 452 consecutive patients presenting with STEMI from 01/2010 to 03/2012 in a tertiary care hospital were included in this retrospective study. Demographic, procedural, and pre-discharge mortality data were collected on all patients. Health insurance status (insured or uninsured) and mode of arrival (by emergency medical service (EMS) or by self-transport) were recorded.

Results: Out of 452 patients, 18.4% patients had no insurance and 44% patients arrived by self-transport. Patient with no insurance were younger (62±11 vs 66±12 years, p<0.001) and more likely to be smokers (48% vs 29%, P=0.002) compared to patients with insurance coverage. There was no difference in gender, medical co-morbidities, LVEF, and door-to-balloon time between patients with or without health insurance or those arriving by ambulance or self transport. Uninsured patients were more likely to arrive by self transport rather than utilizing EMS (P<0.001) and more likely to arrive in the evening or night hours (5PM-7AM) (p<0.001) compared with those with health insurance. Door-to-balloon time, LVEF and incidence of major bleeding events did not differ with insurance status or mode of arrival. In-hospital mortality was higher in uninsured patients (15.7% vs 2.8%, p<0.0001). Door to balloon time was also a significant predictor of in-hospital mortality. Mode of arrival did not influence mortality. Multivariate analysis identified door to balloon time and health insurance status to be independent predictors of in-hospital mortality (p<0.001).

Conclusions: Uninsured patients with STEMI have a higher probability of not utilizing essential health care resources such as EMS and presenting during off hours. They also have a significantly higher in-hospital mortality compared to those with health insurance, likely due to absence of long term, preventive health care.

TCT-510

Echocardiographic Correlates of Persistent ST-elevation on ECG in STEMI Patients Undergoing Percutaneous Coronary Intervention

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Background: Persistent ST elevation(STE) on ECG after acute STE myocardial infarction (MI) has been considered a marker of persistent wall motion abnormalities-(WMA) or aneurysm in the region of MI. However, the echocardiographic correlation of persistent STE has not been studied in percutaneous coronary intervention (PCI) era. We sought to evaluate the significance of persistent STE in patients undergoing PCI for STEMI.

Methods: Consecutive patients undergoing revascularization for first STEMI at a tertiary center from July 2007 to June 2010 were included. Patients who died during the hospitalization, had coronary vasospasm, clinical post-MI pericarditis or bundle branch block on ECG were excluded. Presentation, discharge and follow up ECGs were reviewed. STE was defined as presence of 0.5 mm of ST in standard limb or precordial leads. Echocardiograms done within 2 days of MI, and on follow-up post-discharge were reviewed for presence of WMA in the region corresponding to STE.

Results: 170 patients were considered after exclusion criteria were met. Follow-up echocardiograms were available in 120 patients who were included in final analysis of STEMI patients; mean age 61.9 years. Persistent STE was noted in 38(30.1%) patients at discharge and in 30(23.8%) patients on follow up. Q-waves were noted in 64(50.8%) patients at discharge. Corresponding WMA were present in 95(75.4%) patients on initial echocardiogram and persisted in 54(42.8%) patients on follow-up echocardiogram. Aneurysm or dyskinesis was not seen in any patient with persistent STE. Presence of STE at discharge and follow up, as well as Q waves at discharge correlated significantly with persistence of significant WMA other than dyskinesis on follow up (p values<0.001). The sensitivity and specificity for predicting persistent WMA on follow-up were 61.1% and 93% for STE at discharge, 49.1% and 94.4% for STE at follow-up and 72.2% and 65.3% for Q waves at discharge.

Conclusions: Persistent STE on ECG is not uncommon at discharge and on follow-up in patients undergoing PCI for STEMI, and does not predict development of aneurysm. Persistent STE at discharge or follow-up is a highly specific marker of persistent WMA in region of STEMI despite PCI.

TCT-511

High Level of Pre-procedural High-Sensitivity C-Reactive Protein Predicts Stent Thrombosis After Percutaneous Coronary Intervention in Patients with Acute Myocardial Infarction

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Background: High sensitivity C-Reactive Protein (hs-CRP) is associated with cardiovascular events in the healthy general population as well as in patients with coronary artery disease. However, the prognostic value of hs-CRP elevation before coronary stent implantation remains debated regarding STEMI patients (especially in acute myocardial infarction (AMI) patients). This study examined whether hs-CRP elevation may predict stent thrombosis (ST).

Methods: A total of 7896 AMI patients who underwent coronary stent implantation with drug eluting stent (mean age = 64± 12.4 years, 5838 males, 5408 STE elevation MI, 2561 non ST elevation MI) were analyzed in the Korean Acute Myocardial Infarction Registry. During clinical follow-up of 12 months, major adverse cardiac events (MACE), and ST were evaluated.

Results: 133 STIs (1.4%) were developed during 12 months (acute STE: 10 patients, subacute ST: 72 patients, late STE: 38 patients). The incidence of total ST had increased as level of hs-CRP had increased. 1st quartile (0 ≤ hs-CRP < 0.9 mg/L) 0.7%, 2nd quartile (0.9 ≤ hs-CRP < 2.6 mg/L) 1.1%, 3rd quartile (2.6 ≤ hs-CRP ≤ 6.3 mg/L) 1.5%, 4th quartile (hs-CRP > 6.3 mg/L) 1.7%, p = 0.008. In a multivariable logistic regression analysis, the level of hs-CRP greater than 2.0 mg/L (p<0.001, hazard ratio (HR): 2.36, 95% confidence interval (CI): 1.47-3.80), many number of implanted stents (p=0.002, HR: 1.357, 95% confidence interval (CI): 1.12-1.65), old age (p=0.020, HR: 1.02, 95% CI: 1.01-1.03) were independent predictors of ST.

Conclusions: High hs-CRP levels (≥ 2.0 mg/L) before coronary stent implantation in AMI patients are associated with risk of ST. These data suggest that pre-procedural hs-CRP is a predictor of stent thrombosis.