Safety and Efficacy of Overlapping Homogenous Drug-eluting Stents in Patients with Acute Myocardial Infarction

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Background: Patients with drug-eluting stents (DESs) overlap are at greater risk of experiencing major adverse cardiac events (MACE), particularly in terms of need of repeat revascularization and mortality. The aim of this study was to compare safety and efficacy of 4 homogenous overlapping DESs in acute myocardial infarction (AMI) patients.

Methods: We selected 1,349 consecutive patients (mean age 62.1±14.9 years, 69.4% male) who received homogenous overlapping stents in diffuse de novo coronary lesions from Korea Acute Myocardial Infarction Registry from Apr. 2006 through Sep. 2010. They were divided into 4 groups based on type of DESs implanted - Paclitaxel (PES), Sirolimus (SES), Zotarolimus (ZES) and Everolimus (EES)-eluting stents. Primary endpoint was 12-month MACE. We also studied EES versus other DESs (PES+SES+ZES).

Results: Mean stent length was 26.2±7.5mm and mean stent diameter was 3.1±0.4mm. Average number of stents used per vessel was 2.2±0.5. Incidence of MACE in PES, SES, ZES and EES groups were 9.5%, 9.2%, 7.5% and 3.8% respectively (p=0.013). In EES group, overall MACE and repeat revascularization were lowest, and no incidence of stent thrombosis was observed. Non-fatal MI was highest in PES, almost similar in SES and EES with no incidence in ZES group, (p=0.044). Cox proportional hazard analysis revealed no differences in the incidence of primary endpoint (p=0.409). When EES was directly compared to other DESs (PES+SES+ZES) 12-month MACE differed significantly between 2 groups (HR 5.052, 1.176-21.702, p=0.029).

Conclusion: EES showed lowest incidence of MACE and TLR-driven repeat revascularization among the DESs studied.

Differential Diagnosis of AMI and PTE in Patients with Negative T Wave in Anterior Leads of Electrocardiogram

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Background and study objective: The anterior ischemic pattern such as negative T wave is most frequent Electrocardiographic (ECG) sign of pulmonary thromboembolism (PTE) or anterior wall acute myocardial infarction (AMI). The aim of the present study was to evaluate the distinguishable findings between AMI and PTE in patients with negative T wave in anterior lead. Subject and methods: We analyzed 12-lead ECG, echocardiography and laboratory finding of 151 patients (PTE group; n=51, AMI group; n=100) with the diagnosis of PTE and AMI confirmed by computed tomography or coronary angiography, at Chonnam National University Hospital, between July 2008 and July 2011. The ECG analysis included S1Q3T3 complex(negative S waves in lead I and negative Q or T waves in lead III), sinus tachycardia(>100 beats/min), right bundle branch block (RBBB), low QRS voltage in peripheral leads and pulmonary P wave in lead II. Echocardiographic findings was included both ventricular systolic function and right ventricular systolic pressure (RVSP). We compared the ECG, echocardiography and biomarkers to distinguish from PTE and AMI. Results: S1Q3T3 was the most frequent ECG finding (42%), and was more common in PTE than AMI (42% vs. 8.1%, p=0.001). Also sinus tachycardia (36% vs. 6.1%, p=0.001), low QRS in peripheral leads (24% vs. 8.1%, p=0.011), pulmonary P wave in lead II (10% vs. 1%, p=0.016) was more common in AMI than PTE. In echocardiography, RVSP (56 mmHg vs. 29.85 mmHg, p=0.001) and systolic function (65.64% vs. 56.41%, p=0.001) were significantly higher in PTE than AMI. In laboratory findings, D-dimer (0.7851 vs. 0.2112, p=0.001) was significantly higher and Troponin-I was significantly lower (0.4814 vs. 5.7928, p=0.001) in PTE than AMI. Conclusion: The S1Q3T3 in ECG, elevated RVSP in echocardiography, and D-dimer in laboratory findings were useful to distinguish AMI from PTE in patients with negative T wave in anterior lead.