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Comparison of Coronary Drug-Eluting Stents Versus Coronary Artery Bypass Grafting in Diabetics with Acute Myocardial Infarction

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Background : Drug-eluting stents (DESs) provide superior long-term results compared with bare metal stents in patients with type 2 diabetes mellitus. The present study assessed effects of DESs versus coronary artery bypass grafting (CABG) on 6-month outcome of diabetic patients with acute myocardial infarction (AMI) and multivessel disease who underwent elective myocardial revascularization. **Methods and Results :** A total of 199 diabetics with non-ST-elevation myocardial infarction (NSTEMI) and multivessel coronary artery disease who underwent their first elective myocardial revascularization by DES implantation (DES group) or bypass surgery (CABG group) between Oct. 2005 and Oct. 2006 were retrospectively analyzed: DES group: 177 pts (114 male, 65.8±10.1 years) and CABG group: 22 pts (16 male, 66.8±7.5 years). Patients in the CABG group had more severe left ventricular dysfunction (43.7±13.5 vs. 52.3±12.8, p=0.016) and had a higher rate of 3-vessel disease (CABG group: n=18(81.8%), DES group: n=88(49.7%), p=0.002) and complete revascularization (CABG group: n=11(61.1%), DES group: n=47(26.7%), p=0.002) than those in the DES group. At 30 days, AMI occurred in 1.1% of the DES group and 4.5% of the CABG group (p=0.298). At six-month follow-up, major adverse cardiac events occurred in 9% of the DES group and 4.5% of the CABG group, but no significant difference existed between the two groups. **Conclusion :** Long-term outcomes of drug-eluting stents seem to be comparable to those of CABG in diabetic patients with AMI and multivessel disease who undergo elective myocardial revascularization.

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Impact of Renal Function on Coronary Plaque Characteristics in Patients with Acute ST-Segment Elevation Myocardial Infarction

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Background : Previous studies have shown that renal insufficiency is an independent predictor of significant coronary artery disease and is associated with subclinical atherosclerosis. **Objectives and Methods :** We used intravascular ultrasound to assess plaque morphology and morphometry in 125 acute ST-segment elevation myocardial infarction (MI) patients with varying degrees of renal dysfunction according to creatinine clearance (CrCl): Group I [CrCl >70 ml/min (n=73)]; Group II [CrCl 30 to 69 ml/min (n=36)]; Group III [CrCl <30 ml/min, (n=16)]. **Results :** Group III patients were oldest (Group I: 59±12 years, Group II: 69±15 years, Group III: 75±11 years, p=0.011) and had most diabetes (Group I: 22%, Group II: 36%, Group III: 75%, p<0.001). The presence of thrombus (Group I: 29%, Group II: 31%, Group III: 69%, p=0.008), lipid-pool like image (Group I: 30%, Group II: 42%, Group III: 75%, p=0.004), and plaque rupture (Group I: 38%, Group II: 50%, Group III: 75%, p=0.025) and multiple plaque ruptures (Group I: 14%, Group II: 19%, Group III: 44%, p=0.022) were most common in Group III. Plaque cavity was largest (Group I: 1.9±1.0 mm2, Group II: 2.3±1.8 mm2, Group III: 3.3±2.0 mm2, p=0.046) and ruptured plaque length was longest (Group I: 2.1±1.0 mm, Group II: 2.7±1.8 mm, Group III: 3.8±2.2 mm, p=0.011) in Group III. **Conclusions :** A significant decrease in renal function (CrCl <30 ml/min) is associated with more unstable plaque morphology (more frequent single and multiple plaque ruptures, thrombus, and lipid-pool like image) in patients with acute ST-segment elevation MI. This may contribute to the worse acute and chronic outcomes in these patients.