MYOCARDIAL ISCHEMIA AND INFARCTION

MYOCARDIAL PROTECTION BY INTRACORONARY ADMINISTRATION OF SHORT-ACTING BETA-BLOCKER, LANDIOLOL, DURING ELECTIVE PERCUTANEOUS CORONARY INTERVENTION

ACC Poster Contributions
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Authors: Park Haengnam, Secondary department of internal medicine, Kansai medical University, Moriguchi, Japan

Background: Myocardial injury during elective percutaneous coronary intervention (PCI) is associated with higher subsequent cardiac events and mortality. It has been demonstrated that intracoronary administration of a long-acting β-blocker during elective PCI is effective in preventing myocardial injury. However, safety and timing of the drug administration remain a controversial issue. We employed short-acting β-blocker landiolol for distal myocardial protection during elective PCI, because its immediate action and a very short half-life are thought to exert a powerful anti-ischemic effect without a risk for heart failure.

Methods: Patients undergoing elective PCI (n=40) were randomly assigned in a double-blind fashion to receive landiolol (n=20) and its vehicle saline (n=20). Landiolol (0.06 mg/kg) or saline was administered into target vessels through the dilatation catheter for one minute before and after first balloon inflation.

Results: Baseline clinical, angiographic and procedural characteristics were comparable between landiolol and saline groups. Incidence of myocardial injury defined by cardiac troponin I (cTnI)≥0.04 ng/mL was seen in 75% of the control group compared to 50% of the landiolol group (p=0.02). Both cTnI and creatine kinase-MB (CK-MB) levels at 24 hours after PCI tended to be lower in the landiolol group (cTnI: 0.8±0.3 versus 1.7±0.6 ng/mL; p=0.15, CK-MB: 4.6±1.2 versus 8.6±2.5 ng/mL; p=0.15). Evidence of postprocedural myocardial infarction defined by cTnI≥0.11 ng/mL was seen in 70% of the control group compared to 47% of the landiolol group (p=0.04). There was no incidence of coronary spasm, bradycardia and congestive heart failure in both groups.

Conclusions: Brief intracoronary administration of landiolol is safe and effective for distal myocardial protection during elective PCI. Such reduction of myocardial injury during elective PCI may ultimately contribute to improvement of the prognosis in patients with coronary artery disease.