HYPOGLYCEMIA IS ASSOCIATED WITH AN INCREASED INCIDENCE OF PERI-PROCEDURAL MYOCARDIAL DAMAGE IN NON-DIABETIC PATIENTS UNDERGOING CORONARY ANGIOPLASTY

i2 Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Pharmacotherapies and Complex Patients
Abstract Category: PCI - Complex Patients
Presentation Number: 2504-500

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Background: Plasma blood glucose levels (BGLs) have been directly considered as independent prognostic factor regardless of diabetic status in patients with acute coronary syndromes. However, few data are available with regard to the association between BGLs and peri-procedural outcome in patients undergoing percutaneous coronary interventions (PCI). We aimed to investigate the relationship between glycemic status and procedural myocardial damage in non-diabetic patients treated with coronary stenting.

Methods: We prospectively enrolled 389 patients without history of diabetes who underwent PCI at our Institution. In all patients, blood glucose levels were measured before PCI and, according to these, pre-defined groups were considered: hypoglycemia < 80 mg/dl; euglycemia 81-109 mg/dl; mild hyperglycemia 110-125 mg/dl; hyperglycemia > 126 mg/dl. Troponin I levels were recorded before and 8 and 24 hours after the procedure. Periprocedural myocardial infarction (MI) was defined as a post-procedural increase in creatine-kinase MB and/or troponin I > 3 times the upper normal limit (3.6 and 0.06 ng/ml, respectively).

Results: Hypoglycemia was significantly associated with an increased incidence of periprocedural myocardial infarction (63% vs 32% in euglycemia group, \( p = 0.006 \); \( p \) for trend 0.053). Any increase in troponin levels above the upper normal limit was also significantly more frequent in patients with pre-procedural blood glucose levels \( \leq 80 \) mg/dl compared to the other groups.

Conclusions: This study demonstrated that a hypoglycemic status at the time of PCI is associated with increased incidence of peri-procedural myocardial damage also in patients without a previous diagnosis of diabetes mellitus. Pre-procedural hypoglycemia, by an enhanced release of inflammatory mediators and an increased platelet activation, may potentially amplify the pathologic mechanisms responsible for myocardial damage during coronary angioplasty. Glycemic monitoring may be indicated to improve in-hospital results in the setting of percutaneous coronary revascularization.