Usefulness of Low-density Lipoprotein to High-density Lipoprotein Cholesterol Ratio
As a Predictor of Clinical Outcomes after Percutaneous Coronary Intervention in Patients with Diabetes Mellitus

Akihiro Nomura, Kyohei Yamaji, Hirotoshi Watanabe, Shoichi Kuramitsu, Yoshimitsu Soga, Takeshi Anta, Hiroyoshi Yokoi, Masashi Iwabuchi, Masakiyo Nobuyoshi
Kokura Memorial Hospital, Department of Cardiology, Kitakyusyu, Japan

Abstract

Purpose: It has been uncertain whether the low-density lipoprotein to high-density lipoprotein cholesterol (LDL/HDL) ratio influences prognosis in patients with type 2 diabetes mellitus (T2DM) after percutaneous coronary intervention (PCI). This aim of this study was to clarify 1-year clinical outcomes after elective PCI for patients with T2DM and to evaluate potential predictors including the LDL/HDL ratio.

Methods: From February 2010 to January 2011, consecutive 296 patients with T2DM who underwent elective PCI were collected. Baseline clinical characteristics, lesion profile, medication, HbA1c and the LDL/HDL ratio were also evaluated. The endpoints of this study were 1) a composite of all-cause death, myocardial infarction (MI) and stroke, 2) device-oriented composite endpoint (DOCE) defined as cardiac death, target-lesion MI and target lesion revascularization, and 3) patient-oriented composite endpoint (POCE) defined as all-cause death, any MI and any coronary revascularization at 1 year. Multivariate analyses of independent predictors of each clinical outcome were performed with a Cox-proportional hazard regression model.

Results: The mean age was 62 ± 5 years, 222 patients (75%) were male, and mean LDL/HDL ratio was 2.2 ± 0.82. At 1 year, the cumulative incidence rates of a composite of all-cause death, MI, and stroke, DOCE and POCE were 6.8%, 13.5%, 27.7%, respectively. In multivariate analysis, HbA1c significantly predicted a composite of all-cause death, MI and Stroke (adjusted hazard ratio (HR) [95% confidence interval (CI)] 1.6 [1.05 to 2.4], P=0.03). Hemodialysis (adjusted HR [95% CI], 2.1 [1.2 to 3.4], P<0.01) and the LDL/HDL ratio (adjusted HR [95% CI], 1.4 [1.04 to 1.8], P=0.03) were significantly associated with POCE. Any variables were not significantly associated with DOCE.

Conclusions: The LDL/HDL ratio was significantly associated with 1-year POCE in patients with T2DM after elective PCI. The LDL/HDL ratio could be a useful tool to predict clinical outcomes in diabetic patients who underwent elective PCI.

Objectives

The safety and efficacy of the everolimus-eluting stents (EES) have been demonstrated in some randomized trials (such as SPIRIT trials). However, the long-term performance of EES and its risk factors have not been fully clarified in patients with type 2 diabetes mellitus (T2DM). Also, it has been uncertain whether the low-density lipoprotein to high-density lipoprotein cholesterol (LDL/HDL) ratio influences prognosis in patients with T2DM after percutaneous coronary intervention (PCI).

The aims of this study are:
1) to clarify 1-year clinical outcomes after elective PCI for patients with T2DM
2) to evaluate prognostic factors of each clinical outcomes including the LDL/HDL ratio at 1 year.

Methods

1) Design: Retrospective cohort study by reviewing medical records.
2) Setting: Kokura Memorial Hospital, Kitakyusyu.
3) Study period: From February 2010 to January 2011 (1 year).
4) Patients: Consecutive 296 patients with type 2 diabetes mellitus who underwent elective PCI with everolimus-eluting stents were evaluated.
5) Definitions: Device-oriented composite endpoint (DOCE) was defined as cardiac death, target-lesion MI and target lesion revascularization, and 3) patient-oriented composite endpoint (POCE) was defined as all-cause death, any MI and any coronary revascularization.
6) Analysis: Difference between the groups in distributions of the variables were statistically tested by Student t test or Fisher’s exact test. We also calculated Kaplan-Meier estimates and performed time-to-event analysis.

Table 1

Table 2

Table 2


Conclusion

1) At 1 year, the cumulative incidence rates of a composite of death, MI, and stroke, DOCE and POCE were 6.8%, 13.5%, 27.7%, respectively.
2) The LDL/HDL ratio was significantly associated with 1-year POCE in patients with T2DM after elective PCI. The LDL/HDL ratio could be a useful tool to predict clinical outcomes in diabetic patients who underwent elective PCI.

Disclosure: No authors regarding this paper presentation have any conflict of interests.

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