Abstract: P6447

Prediabetes versus diabetes mellitus in acute coronary syndrome patients: two sides of the same coin

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Topic(s):
Coronary Artery Disease and Comorbidities

Citation:
Background: Prediabetic patients are at increased risk of composite cardiovascular (CV) events and all-cause mortality. The impact of prediabetes diagnosis in the context of an acute coronary syndrome (ACS) remains to be determined.

Purpose: To assess the differences on long-term mortality between well controlled diabetic and prediabetic patients admitted with non-ST elevation ACS.

Methods: 352 non-ST elevation ACS patients admitted to a single coronary care unit between 2009 and 2016 were included. Clinical, laboratorial and echocardiographic data were evaluated. Two groups were created based on the diabetic status and HBA1c level: Group A (prediabetic patients, HBA1c between 5.7-6.4%) N=229; Group B (diabetic patients, HBA1c =7%) N=123. The primary endpoint was long-term all-cause mortality. Kaplan-Meyer survival curves and Cox regression were done. The mean time of follow up was 48±30 months.

Results: The groups were similar regarding demographics, CV risk factors, ACS type, heart failure diagnosis, peak troponin I, left ventricular (LV) systolic function, multivessel disease and treatment option (PCI, CABG or OMT). On the contrary, well controlled diabetic patients had a higher prevalence of chronic kidney disease (CKD) (27.9% vs 39.0%, P<0.05), hypertension (82.5% vs 91.9%, P<0.05), higher body mass index (BMI) (23±4 vs 24±4 kg/m², P<0.05) and previous coronary artery disease (37.1% vs 51.2%, P<0.05). 95 patients met the primary outcome. Kaplan-Meyer curves showed a tendency to decreased survival in the diabetic group (72.8% vs 66.4%, Log Rank P=0.09 – Figure 1). After adjustment for age, CKD, BMI (6 categories), heart failure diagnosis, peak troponin I and LV systolic function, controlled diabetes was not associated with increased death (HR 1.40, 95% CI 0.87-2.26). In this model, only age (HR 1.05, 95% CI 1.02-1.08), peak troponin (HR 1.01, 95% CI 1.00-1.01) and moderate to severely impaired LV function (HR 2.00, 95% CI 1.12-3.56) remained associated with the outcome.

Conclusion: In the context of an ACS, prediabetics should be regarded as a high-risk group. This study raises the provocative question that prediabetics and diabetics patients should be approached in similar ways in terms of risk stratification and therapeutic options after an ACS. In these patients, age, peak troponin and impaired LV function appear to be the main contributors to decreased survival.
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Figure 1: Kaplan-Meyer curves for all-cause mortality according to diabetic status: prediabetic vs well controlled diabetic patients.