

# The role of kidney function on patient survival after percutaneous coronary intervention for acute coronary syndrome in left main coronary artery disease

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## Introduction.

Chronic kidney disease (CKD) is associated with a high burden of stable coronary artery disease and increased incidence of acute coronary syndrome (ACS). Left main coronary artery (LMCA) disease is the highest-risk lesion of ischemic heart disease, where revascularization with either percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) is needed. Presence of CKD in these patients may increase the risk of complications and mortality associated with revascularization procedures (1-4).

The aim of our study was to determine the role of CKD on survival of patients after undergoing PCI for ACS in LMCA disease.

## Methods.

In our retrospective study, 203 patients (68% male) were included. All patients underwent primary PCI of LMCA between January 1st, 2008 and December 31st, 2016. The patients were observed from the PCI until their death or September 25th, 2020 (average time of observation was 5.5 years). Mean age of included patients was  $69.5 \pm 11.3$  years (minimum 38 years, maximum 91 years). CKD was defined as an estimated glomerular filtration rate (eGFR)  $\leq 60$  ml/min/1.73m<sup>2</sup> by using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation. Comorbidities, such as arterial hypertension (AH), diabetes mellitus (DM), and dyslipidaemia were recorded. Survival rates were analyzed using Kaplan-Meier survival curves and Cox's regression model was used to assess the influence of CKD, AH, DM, and dyslipidaemia.

## Results.

One hundred sixty-six (81.8%) patients had AH, 59 (29.1 %) had DM, and 132 (64.9%) had dyslipidaemia. Eighty-one (39.9%) patients had eGFR  $\leq 60$  ml/min/1.73 m<sup>2</sup> (CKD group). Mean survival time of patients in the CKD group was  $1489 \pm 1474$  days compared to  $2357 \pm 1382$  days for the non-CKD ( $p < 0.0001$ ). Sixty-seven (82.7%) CKD and 58 (47.5%) non-CKD patients died. Kaplan-Meier survival analysis showed higher risk of death for CKD patients (log rank test;  $p < 0.001$ ). In Cox multivariable regression model, CKD remained a predictor of all-cause mortality in our patients (HR was 2.087 (95% CI 1.443-3.021;  $P = 0.0001$ )). Additionally, the impact of dyslipidaemia was also statistically significant ( $p = 0.0001$ ), while AH ( $p = 0.930$ ) and DM ( $p = 0.252$ ) showed no impact.

## Conclusions.

The results indicate an association between CKD and all-cause mortality in patients after undergoing PCI for ACS in LMCA disease.

