Every third patient with advanced renal failure dies within one year following non-ST-segment elevation myocardial infarction treated with percutaneous coronary intervention

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Background and Aims: Kidney failure is highly prevalent in patients with the non-ST-elevation myocardial infarction (NSTEMI). The aim of the study was to evaluate the prognostic significance of baseline renal function regarding in-hospital and 1-year mortality among patients with NSTEMI who were treated with percutaneous coronary intervention (PCI).

Methods: Data were obtained from the Polish Registry of Acute Coronary Syndromes (PL-ACS). We extracted all patients with NSTEMI (n=47,052) who were treated with PCI between 2017 and 2021. The cumulative incidence of all-cause mortality during the 1-year follow-up was presented using the Kaplan-Meier curves. The linearity of the association between the Estimated Glomerular Filtration Rate (eGFR) with all-cause mortality was evaluated using a likelihood ratio test. The multivariate Cox regression model was created to adjust the relationship between eGFR and all-cause mortality for potential confounders.

Results: After considering the exclusion criteria, 20,834 cases were evaluated, with a median eGFR of 72.7 (IQR 56.6-87.5) mL/min/1.73 m². The median age was 69 (62-76) years. The study comprised 4,505 patients with normal (90-120), 10,189 with mild (60-89), 5,539 with moderate eGFR (30-59), and 601 with severe renal impairment (15-29). There was a stepwise increase in the crude all-cause death rates across the groups at 1 year. The cox regression model revealed that the relationship between eGFR and the risk of death at 1 year was non-linear (reverse J-shaped, Fig. 1), and the risk was the lowest in patients with eGFR~90 mL/min/1.73 m².

Conclusions: There is a J-curve relationship between the eGFR value and 1-year all-cause mortality in patients with NSTEMI and treated with PCI.