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Predictors of in-hospital and long-term mortality in patients with type 2 myocardial infarction diagnosed by coronary angiography

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Topic(s):
Acute Coronary Syndromes – Epidemiology, Prognosis, Outcome

Citation:
Background: Type 2 (T2) myocardial infarction (MI) accounts for a significant proportion of the total number of MIs. Risk stratification for adverse outcomes in this population requires further study.
Objective: To establish the predictors of in-hospital and long-term all-cause mortality in patients with T2 MI.
Methods: Our study enrolled 175 consecutive patients admitted with acute T2 MI [97 (55.4%) female; mean age 66.9 ±12.4 years; 43 (24.6%) ST segment elevation] diagnosed according to the Third Universal Definition (2012) and the following angiographic criteria: absence of intraluminal thrombus in the epicardial vessel or signs of atherosclerotic plaque disruption. Clinical features, laboratory and instrumental test results were analyzed in patients surviving the index hospitalisation and the mean follow-up period (2.5 years, via telephone interviews) and compared them with patients dead from any cause by the end of these time intervals. Statistical analysis was performed using IBM SPSS Statistics 21.0 software. Wilcoxon signed rank and Fisher’s exact tests were performed to compare numerical and categorical variables. We then used uni- and multivariate logistic regression to determine independent predictors of the negative outcomes.
Results: Thirteen (7.4%) of included patients died before discharge, and 29 (16.6%) deaths were registered overall. Age >76 years (p <0.001), diastolic blood pressure (BP) <70 mmHg (p <0.001), heart rate (HR) > 80 bpm (p =0.002), presence of active pulmonary diseases and infections (p =0.013), signs of Killip class II-IV heart failure (p <0.001), congestion on chest X-ray (p <0.001), hemoglobin < 116 g/L (p =0.006), troponin >2.86 ng/mL (p =0.024) on admission, and history of chronic kidney disease (p =0.003) were associated with in-hospital mortality in univariate analyses, while low left ventricular ejection fraction (LVEF <36%) was the only independent predictor of death during hospitalisation [odds ration (OR) 12.2; 95% confidence interval (CI) 1.0-158.7, p=0.055]. The use of inotropes (p =0.002) and absence of beta-blocker therapy (p =0.002) also conferred negative prognosis. Long-term mortality was higher in patients aged >74 years (p =0.002), having history of heart failure (p <0.001), signs of congestion on chest X-ray (p =0.001), systolic BP <116 mmHg (p =0.033), HR >80 bpm (p =0.008), hemoglobin <120 g/L (p =0.003), serum glucose >7.2 mmol/L (p =0.004), serum creatinine >91 mc mol/l (p=0.001), low-density lipoprotein cholesterol >4.89 mmol/L (p =0.031) on admission, and receiving treatment with beta-blockers (p=0.049). Again, low LVEF was the single predictor of all-cause death during follow-up after adjustment for the other parameters (OR 5.2; 95% CI 1.1-23.5, p=0.03).
Conclusion: Patients admitted with type 2 myocardial infarction experience substantial in-hospital and long-term mortality, and low left ventricular ejection fraction is the independent predictor of both these outcomes.