

## Long-term prognosis after ST-elevation myocardial infarction in cancer patients

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**Funding Acknowledgement:** Type of funding sources: None.

**Purpose:** To assess survival trends after ST-elevation myocardial infarction (STEMI) in patients with a prior cancer diagnosis and to evaluate the drivers of prognosis over a follow-up period of five years.

**Methods:** Patients with a known cancer diagnosis, admitted with STEMI between 2004–2014 and treated with primary PCI were recruited from the STEMI-clinical registry of our institution. Detailed information on cancer diagnosis, -stage, and treatment regimen were collected from the institutional and national cancer registry system and all patients were followed prospectively.

**Results:** In the 215 included patients the cumulative incidence of all-cause death after 5 years of follow-up was 38.2% (N=61). The cause of death was predominantly malignancy-related (N=29, 47.4% of deaths) and only 9 patients (14.8% of deaths) died of a cardiovascular cause.

After correcting for age and sex – a recent cancer diagnosis (<1yr relative to >10 yr, HR 3.405 [95% CI: 1.552–7.470], p=0.002), distant metastasis at presentation (HR 2.603 [1.236–5.481], p=0.012), ongoing cancer

treatment at presentation (HR 1.878 [1.015–3.475], p=0.045) and natural logarithm of maximum creatinine kinase level (HR 1.345 [1.044–1.733], p=0.022) were significant predictors of long-term mortality.

While prevalent renal insufficiency showed significant association with all-cause mortality (HR 2.302 [1.289–4.111], p=0.005), other known determinants of long-term prognosis after STEMI – a history of diabetes mellitus (HR 1.250 [0.566–2.761], p=0.581), hypertension (HR 0.623 [0.393–1.085], p=0.150), and culprit vessel left anterior descending artery or left main artery (HR 1.066 [0.641–1.771], p=0.806) were not significantly associated with survival at 5-years follow-up.

**Conclusion:** Cancer patients admitted with STEMI have a poor survival with one third of patients died at 5 year follow up. Cancer was the most common cause of death and malignancy-related factors made a significant impact on prognosis, while most of the established cardiovascular determinants of prognosis were not significantly associated with long-term survival.

