Abstract: P6389

Infection and type 2 myocardial infarction: a large observational study from emergency department

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Topic(s):
Acute Coronary Syndromes: Myocardial Infarction with Non-obstructive Coronary Arteries

Citation:
Background: Troponin elevation is frequent in patients with acute infection (AI) admitted to emergency unit (EU). Acute infection (AI) has been suggested as a common trigger in type 2 myocardial infarction (T2MI), corresponding to a myocardial oxygen supply-demand mismatch without atherothrombosis. We aim to characterize risk factors of T2MI occurrence and in-hospital mortality among patients admitted to an EU with AI and elevated troponin.

Methods: Among the medical records of all the patients admitted from January 2014 to December 2016 in a university hospital EU (n=82 543), patients with a diagnosis of AI and elevated troponin Ic (=0.10µg/L) (n=714) were systematically adjudicated as T2MI in the presence of symptoms or signs of myocardial ischemia (typical chest pain and/or ECG changes).

Results: Among the 714 patients included (aged 85, 50% male), 185 (26%) were classified as T2MI, of whom infection site was pulmonary tract (n=111), urinary tract (n=27), skin (n=15), digestive tract (n=9) or other or indefinite site (n=23). By multivariate analysis, a history of chronic obstructive pulmonary disease (COPD) (OR (95% CI): 0.53 (0.30-0.96)), high temperature (OR: 0.86 (0.74-0.99) per °C) and elevated creatinine (OR 0.998 (0.996-1.000) per µmol/L) were associated with a lower risk of T2MI, whereas age, site of infection, C-reactive protein and troponin rates were not predictors of T2MI. Death rate was similar among patients with or without T2MI (21 vs 23%, p=0.6). In contrast, age, troponine, creatinine or C-reactive protein elevations were independent co-variates associated with mortality.

Conclusions: Our large real-life study shows that in patients admitted to an EU with AI and troponin elevation, T2MI is a common feature, in the absence of temperature elevation, renal insufficiency or history of COPD. In such patients, inflammatory and cardiac biomarkers levels were independently associated with early mortality.