Cumulative prognostic effect of diabetes and myocardial injury in patients attended in the emergency room

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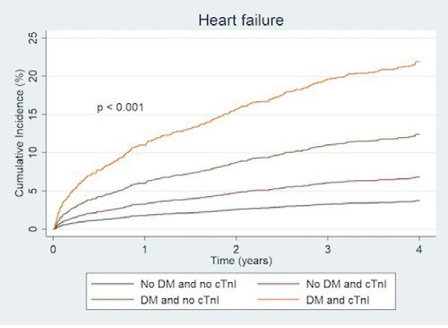
Background: Diabetes and myocardial injury are clinical conditions associated with cardiovascular events and increased mortality during follow-up. It is not known to what extent both conditions enhance their prognostic effect in patients seen in the emergency room with cardiac troponin determination.

Purpose: This study aims to evaluate the prognostic implication of diabetes and myocardial injury in patients attended in the emergency room with cardiac troponin determination.

Methods: Retrospective observational cohorts study, in which all the patients attended the emergency room from January 2012 and December 2013 with a troponin determination. The sample was categorized according to the diabetes mellitus condition and myocardial injury (troponin below 99 th), studying four groups: non-diabetic without myocardial injury (G1), diabetic without myocardial injury (G2), non-diabetic with myocardial injury (G3), and diabetic with myocardial injury (G4). Baseline clinic characteristics and prognostic data were studied with a four years follow-up.

Results: A total of 3622 patients were studied; 924 (25'55%) diabetics. Three hundred seventy-one diabetic patients (40% of all diabetic patients) had an elevated troponin determination, while six hundred seventy-eights non-diabetic patients had elevated troponin (25'13% from all non-diabetics). Diabetic patients were significantly older (mean age 74 vs. 67 years). They had more frequently history of hypertension (81'9% vs 53'2%), acute myocardial infarction (31'6% vs 15'8%), heart failure (11'1% vs 5'7%), peripheral vascular disease (11'1% vs 5'2%), cerebrovascular disease (11'4% vs 6'6%), chronic pulmonary disease (23'3% vs 16'2%) and renal impairment (16'8% vs 5'2%). At four years of follow-up, G2, G3 and G4 had higher mortality than G1 (HR (95IC): 1,352 (1,080–1,693), 2,896 (2,896–3,477), and 3,441 (2,809–4,216), respectively). A multivariate competing risk model was used to obtain the HRs for readmission for myocardial infarction and heart failure between G2, G3 and G4 in relation to G1 (HR (IC 95%) 2,511 (1,592–3,96), 2,682 (1,739–4,138) and 5,036 (3,221–7,876), respectively for myocardial infarction, and 2,663 (1,825–3,886), 2,562 (1,753–3,744) and 4,292 (2,936–6,274) respectively for heart failure).

Conclusions: Both conditions, myocardial injury, and diabetes have a prognostic impact at a long-term follow-up with a cumulative effect, being the troponin elevation, a better prognostic marker of death risk, and similar to diabetes history for the risk of myocardial infarction and heart failure.



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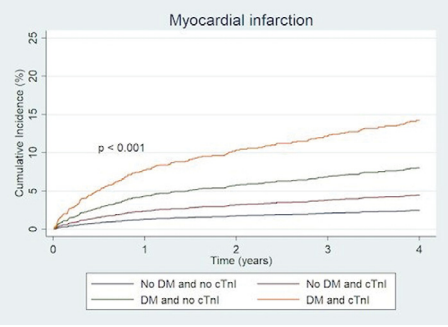

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