Management and outcome of patients with acute myocardial infarction presenting with pacemaker rhythm

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BACKGROUND
Diagnosis of acute myocardial infarction (MI) is challenging in pacemaker patients. Little is known about this patient group.

METHODS
Patients with MI enrolled in the Swiss national AMIS Plus registry between January 2005 and December 2015 were analyzed. All patients with either paced ventricular rhythm or sinus rhythm with intrinsic ventricular conduction (IVC) were included in this study. Outcomes using crude data and propensity score matching were compared between patients with pacemaker rhythm and patients with IVC. The primary endpoint was in-hospital death.

RESULTS
Data from 300 patients with paced rhythm and 27,595 with IVC were analyzed. Patients with pacemaker rhythm were older (78.2y vs 65.4y; p<0.001), had more comorbidities (Charlson Index (CCI)>1: 54.0% vs 21.1%; p<0.001) and a higher rate of heart failure upon presentation (Killip class>2, 11.0% vs 5.9%; p<0.001) compared to patients with IVC. Door to balloon time in patients undergoing acute PCI is markedly delayed in contrast to patients with IVC (280min vs 85min; p<0.001). Consequently, crude mortality in patients with pacemakers was high (11.3% vs 4.6%; p<0.001). However, when analyzed with propensity matching for gender, age, CCI>1 and Killip>2, mortality was similar (11.2% vs 10.5%; p=0.70).

CONCLUSION
Pacemaker patients with acute MI represent a high-risk group with doubled crude mortality compared to patients without pacemakers, due to higher age and higher Killip class. Diagnosis is difficult and results in delayed treatment. Treatment algorithms for MI with paced rhythm should possibly be adapted to those used for STEMI or new left bundle branch block.

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