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Prognostic importance of culprit lesion location in cardiogenic shock due to myocardial infarction

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Topic(s):
Acute Cardiac Care – Cardiogenic Shock

Citation:

Funding Acknowledgements:
Research grant from the Danish Heart Foundation and research grant from Abiomed

Background
Cardiogenic shock (CS) after myocardial infarction (MI) carries 30-day mortality rates as high as 50%. Location of culprit lesion can be in all coronary arteries, but most frequently in the left anterior descending (LAD) artery. Whether location of culprit lesion is of prognostic importance in patients with CS following MI remains unknown in contemporary data.

Purpose
The aim of the study was to describe mortality in CS patients in relation to culprit lesion was location.

Methods
From the recruitment area of two tertiary heart centres in Denmark, covering 3.9 million citizens corresponding to two-thirds of the Danish population, all patients admitted with CS due to MI in the period of 2010-2017 were identified through patient records.

Results
A total of 1716 patients with CS were identified. Acute revascularisation was performed in 1482 patients (86%). Among these 44% had the culprit lesion in the LAD, 29% in the right coronary artery (RCA), 14% in the left circumflex (LCX) and 13% in the left main (LM). Patients who were not revascularized had the highest 30-day mortality (86%), followed by patients with a culprit lesion in the LM (66 %), while a culprit lesion in the remaining coronary arteries had comparable and significantly lower mortality (43-48%), p<0.0001 (Figure1). These differences remained significant after multivariate adjustment for age, gender and lactate, heart rate, comatose (yes/no) in CS patients (RCA vs LAD: Hazard ratio (HR) 1.11; 95% confidence interval (CI) 0.90-1.36; p=0.34, LCX vs LAD: HR 0.88; CI 0.66-1.17; p=0.37, LM vs LAD: HR 1.70; CI1.33-2.17; p= <0.0001, Not Revascularized vs LAD: HR 2.96; CI 2.39-3.68; p=<0.0001). Comment: The prognostic importance of single- vs multivessel disease will also be presented.

Conclusion
CS due to culprit lesion in the LAD, RCA and LCX had comparable 30-day mortality rates, whereas patients with culprit in LM had a significantly higher mortality rate. Patients who did not get revascularized carried the gravest prognosis.
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