

Poster presentation

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Influence of peri-infarct dysglycaemia on myocardial infarct size and its effect on cardiovascular outcome as determined by cardiovascular magnetic resonance imaging

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Introduction

Improved outcomes for normoglycaemic patients suffering acute myocardial infarction (AMI) over the last decade have not been matched by similar improvements in mortality for diabetic patients despite similar levels of baseline risk and appropriate medical therapy. The reasons for this disparity in outcome are not completely understood.

Purpose

The purpose of this study was to determine if peri-infarct glycaemic control has an impact on myocardial infarct size, left ventricular ejection fraction (LVEF) and prognosis.

Methods

Ninety-three patients with first acute myocardial infarction (AMI) were studied. 22 patients had diabetes mellitus (DM) based on prior history or admission blood glucose ≥ 11.1 mmol/l. 13 patients had dysglycaemia (admission blood glucose ≥ 7.8 mmol/l but <11.1 mmol/l) and 58 patients had normoglycaemia (admission blood glucose <7.8 mmol/l). Patients underwent CMR imaging at index presentation and at median follow-up of 11 months. The CMR protocol was identical for all patients and included cine imaging and late gadolinium enhancement.

Results

Patients with dysglycaemia and DM had larger infarct sizes by CMR than normoglycaemic patients, at baseline (mean (standard deviation, SD) % LV scar 23.0 (10.9), 25.6 (12.9) and 15.8 (10.3) respectively, overall $p = 0.001$) and at 11 months (mean (SD) % LV scar 17.6 (8.9), 19.1 (9.6) and 12.4 (7.8) respectively, overall $p =$

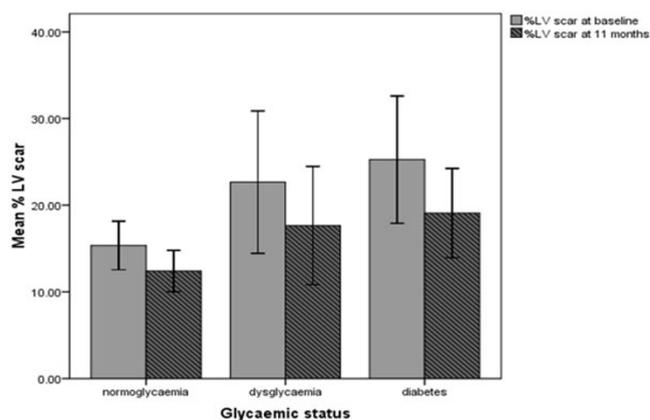


Figure 1
Graph demonstrating mean % LV scar at baseline and at median follow up 11 months according to glycaemic status. The error bars represent the 95% confidence intervals.

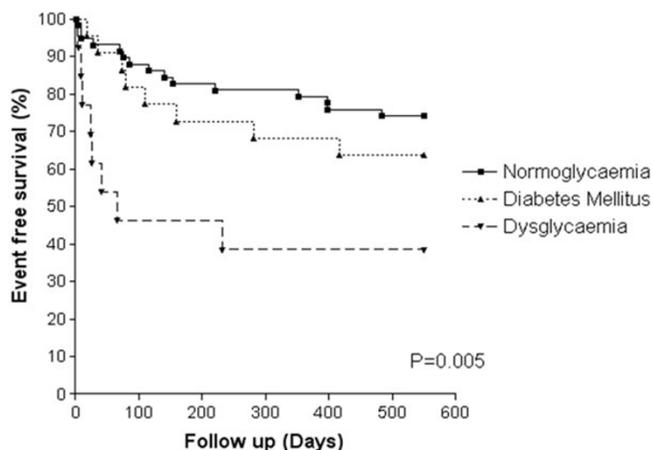


Figure 2
Kaplan-Meier curves demonstratin event-free survival for all patients subdivided by glycaemic status.

0.017) (Figure 1). Patients with dysglycaemia and DM also had lower LVEF than normoglycaemic patients at baseline and at 11 months (not significant) and had lower event-free survival at 18 months (p = 0.005) (Figure 2).

Conclusion

This study highlights the prognostic significance of peri-infarct glycaemic control in patients with AMI. Patients with dysglycaemia or DM appear to have larger infarct sizes and lower LVEF as determined by CMR, than normoglycaemic patients. This may, in part, account for their adverse prognosis.

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