Diabetes and the acute coronary syndrome

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The DIGAMI 1 study was the subject of an important paper published 10 years ago. The original study was a randomised trial comparing treatment of myocardial infarction (MI) with insulin–glucose infusion followed by subcutaneous multi-dose insulin for 3 months with a control group of conventional care. MI was defined by chest pain and new electrocardiogram Q waves, or two sets of raised cardiac enzymes.

The results were striking, showing 8.6% 1-year mortality in the infusion group, compared with 18% in the control group. The problem with the study was that it was not known whether the important thing was the immediate use of insulin or the 3 months of subsequent insulin.

At the time, the debate was on how these results should be translated into clinical care. Many centres have protocols for the inpatient management of MI with diabetes but supervising the continuing insulin regimen for 3 months

or more requires considerable clinical input. DIGAMI 2 was designed to try and answer these questions.

We now have the eagerly awaited results and the general feeling really must be one of disappointment. Essentially, the study was not sufficiently powered to answer all of the questions posed. This is, among other things, due to the clinical impact of the first study. In DIGAMI 1 the plasma glucose after 24 hours of intensive glucose control was 9.6 mmol/l. In DIGAMI 2 the plasma glucose after 24 hours in the control group was only slightly higher, at 10 mmol/l. A question that this study has perhaps been able to answer, though, is one of the relative importance of lowering the blood glucose and the use of insulin: it seems that the important thing is lowering the blood glucose.

One key message that can be taken from the two studies is that it is now inexcusable not to document the glycaemic status of all individuals admitted to the coronary care unit. We may debate how this should be done but we must measure blood glucose and act on the result.

DIGAMI 2 does not support acute, long-term insulin after MI

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓

1 Diabetes is linked to an unfavourable prognosis after an acute myocardial infarction (MI).

2 The Diabetes and Insulin–Glucose infusion in Acute Myocardial Infarction (DIGAMI) 1 trial showed that an insulin-based glucose management strategy reduced the mortality associated with MI.

3 The DIGAMI 2 trial was conducted to further explore the possible benefits of this strategy.

4 There were three study groups: group 1 (n=474) received acute insulin–glucose infusion followed by insulin-based long-term glucose management; group 2 (n=473) received insulin–glucose infusion followed by standard glucose management; and group 3 (n=306) received just standard glucose management.

5 Mortality after 2 years of follow-up (estimated by Kaplan–Meier) did not differ significantly between group 1 (23.4%) and group 2 (21.2%; hazard ratio [HR], 1.03; 95% confidence interval [CI], 0.79–1.34; P=0.831).

6 Neither did mortality differ significantly between group 1 (23.4%) and group 3 (17.9%; HR, 1.26; 95% CI, 0.92–1.72; P=0.157).

7 Thus, support was not provided for an acutely introduced, long-term insulin treatment strategy for patients with diabetes admitted because of myocardial infarction.

Malmberg K, Rydén L, Wedel H et al (2005) Intense metabolic control by means of insulin in patients with diabetes mellitus and acute myocardial infarction (DIGAMI 2): effects on mortality and morbidity. European Heart Journal **26**: 650–61

Inpatient care for IV drug abuse costly

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓

1 Intravenous (IV) drug abuse can lead to a disruption in the routine of food intake and insulin injections needed for effective management of type 1 diabetes (T1D).

2 This retrospective analysis of IV drug-abusing patients with T1D admitted to hospital over a 6-year period investigated the associated financial costs and healthcare problems.

3 IV drug-abusing patients with T1D (n=9) were compared with controls with T1D but without a history of IV drug abuse (n=18) and controls

without T1D but with a history of IV drug abuse (n=198).

4 There were major differences between the patient groups because of repeated admissions related to IV drug abuse and omission of insulin.

5 For instance, the mean inpatient days per year per patient for those who had T1D with and without a history of IV drug abuse were 28.1 (95% confidence interval [CI], 13.6–42.7) and 1.1 (95% CI, 0.2–1.9; P<0.0001), respectively.

6 The respective mean costs of admission were £7320 and £230.

7 Diabetic ketoacidosis accounted for most of the admissions, and the authors suggest that a system of directly supervised insulin therapy might be useful in this patient group.

Saunders SA, Democratis J, Martin J et al (2004) Intravenous drug abuse and Type 1 diabetes: financial and healthcare implications. Circulation **21**(12): 1269–73