Screening for diabetes during and after an acute myocardial infarction: when and how?

The incidence of hyperglycaemia during an ST elevation myocardial infarction (STEMI) is significantly high. Abnormal glucose tolerance during STEMI, diagnosed on a glucose tolerance test (GTT), is an important predictor for future cardiovascular outcomes. Though previous studies have shown GTT to be reproducible a year after STEMI, this was more based on numerical data than the actual patient itself.

In our study, all non-diabetic patients admitted with an STEMI were subjected to 75 grams oral GTT on day 5 after index event to diagnose abnormal glucose tolerance (AGT)[as diabetes (DM) and impaired glucose tolerance (IGT)]. Patients with AGT were referred back to their family physicians for periodic monitoring and were prospectively called back for a repeat GTT (Figure 1).

Seventy-nine consecutive patients were included for this study and 27(34%) had abnormal glucose tolerance based on day 5 GTT. Two patients were diagnosed with diabetes during the monitoring period with the family physicians and were initiated on treatment. 25 (2 patients diagnosed with DM during follow up period patients) had a repeat GTT done (mean 18 months; range 9–26) which showed 9(36%) to have persistent AGT, effectively being only 11% of the original cohort.

Our study again shows the high incidence of hyperglycaemia immediately after a STEMI and the phenomenon of stress hyperglycaemia. This study triggers a few vital issues: Firstly, HbA1c, in keeping with the current recommendations (ADA guidelines) would be a much better investigation to diagnose undiagnosed diabetes, as GTT does not differentiate between pre-existing diabetes and incident stress hyperglycaemia; however a GTT would be useful to guide immediate management.

Secondly, the link between AGT and future cardiovascular outcomes after STEMI are based on admission plasma glucose and GTT rather than HbA1c. Thirdly, GTT helps to diagnose more AGT compared to FPG alone (34% vs13% on day 5 GTT, 41% vs. 22% on follow up GTT in our study). However there is no clear consensus about the exact timing of the first or follow up GTT after a STEMI.

With the emphasis on using HbA1c as a diagnostic test for diabetes, clear guidelines are required regarding the most appropriate method and timing of screening for diabetes and the role of GTT in patients with acute myocardial infarction.
Figure 1. Flow diagram showing the results and the protocol of the study

Lakshminarayanan Varadhan
Specialty Registrar in Endocrinology and Diabetes
University Hospitals of North Staffordshire NHS Trust
Stoke on Trent, United Kingdom

david.barton@sath.nhs.uk

David Barton
Consultant Physician and Endocrinologist
Princess Royal Hospital NHS Trust
Telford, United Kingdom
david.barton@sath.nhs.uk
References:


