

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

SCOPE

1 **Guideline title**

Hyperglycaemia in acute coronary syndromes: management of hyperglycaemia in people with acute coronary syndromes

1.1 **Short title**

Hyperglycaemia in acute coronary syndromes

2 **The remit**

The Department of Health has asked NICE: 'to produce a short clinical guideline on the management of hyperglycaemia in acute coronary syndrome in patients both with and without diagnosed diabetes mellitus'.

3 **Clinical need for the guideline**

3.1 **Epidemiology**

- a) Acute coronary syndromes (ACS) encompass a spectrum of unstable coronary artery disease from unstable angina to transmural myocardial infarction. All forms begin with an inflamed and complicated fatty deposit (known as an atheromatous plaque) in a blood vessel, and blood clots forming on the plaque. The principles behind the presentation, investigation and management of these syndromes are similar with important distinctions depending on the category of acute coronary syndrome.
- b) Hyperglycaemia is common in patients when they are admitted to hospital with ACS. Recent studies found that approximately 65% of patients with acute myocardial infarction (heart attack) who were

not known to have diabetes had impaired glucose regulation when given a glucose tolerance test.

- c) For patients both with and without diabetes mellitus, hyperglycaemia on admission is a powerful predictor of poorer survival and increased risk of complications while in hospital. Despite this, hyperglycaemia remains underappreciated as a risk factor in acute coronary syndromes and it is frequently untreated.
- d) Persistently elevated blood glucose levels during acute myocardial infarction have been shown to be associated with increased in-hospital mortality, and to be a better predictor of outcome than admission blood glucose.

3.2 Current practice

- a) Currently, the management of hyperglycaemia in people with acute coronary syndromes is inconsistent across the UK, whether or not the person has diagnosed diabetes
- b) The Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice recommend that:
 - In people who present with an acute cardiovascular event, fasting glucose should be measured at least once, or an oral glucose tolerance test performed, during their hospital stay
 - Fasting glucose should be measured during the acute phase of the illness. If there is evidence of impaired fasting glucose (more than 6.0 mmol/litre but less than 7.0 mmol/litre) or an indication of diabetes (more than 7.0 mmol/litre) fasting glucose should be measured twice (or an oral glucose tolerance test performed once) between 8 and 12 weeks after discharge from hospital.
- c) The SIGN guidelines on acute coronary syndromes recommend that patients with clinical myocardial infarction and diabetes or marked hyperglycaemia (more than 11 mmol/litre) should be given

immediate intensive blood glucose control. This should be continued for at least 24 hours. The European Society of Cardiology also recommends that patients with acute myocardial infarction and diabetes should be given tight glucometabolic control.

- d) There is currently no relevant national guidance for England, Wales and Northern Ireland on the management of hyperglycaemia in people with acute coronary syndromes.

4 The guideline

The guideline development process is described in detail on the NICE website (see section 6, 'Further information').

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

The areas that will be addressed by the guideline are described in the following sections.

4.1 Population

4.1.1 Groups that will be covered

- a) Adults with acute coronary syndromes and hyperglycaemia with a diagnosis of diabetes.
- b) Adults with acute coronary syndromes and hyperglycaemia without a diagnosis of diabetes.
- c) Subgroups who are at higher risk of mortality and poorer outcomes associated with acute coronary syndrome will be considered as appropriate.

4.1.2 Groups that will not be covered

- a) Adults with hyperglycaemia who do not have acute coronary syndromes.
- b) Adults with acute coronary syndromes who do not have hyperglycaemia.

4.2 *Healthcare setting*

- a) Secondary and tertiary care.

4.3 *Clinical management*

4.3.1 Key clinical issues that will be covered

- a) Threshold values of blood glucose levels for intervention.
- b) Inpatient glucometabolic management (glucose, potassium and insulin) of hyperglycaemia in patients with acute coronary syndrome, who have diagnosed diabetes mellitus.
- c) Inpatient glucometabolic management (glucose, potassium and insulin) of hyperglycaemia in patients with acute coronary syndrome, who do not have diagnosed diabetes mellitus.
- d) Timing and frequency of blood glucose level measures for monitoring purposes in hospital.
- e) Referral for subsequent investigation to confirm possible diabetes in patients without an existing diagnosis of diabetes.

4.3.2 Clinical issues that will not be covered

- a) Diagnosis of diabetes mellitus.
- b) Management of diabetes mellitus.
- c) Diagnosis of acute coronary syndromes.
- d) Management of acute coronary syndromes.

- e) Types of medical devices used to measure hyperglycaemia.
- f) Long-term management of hyperglycaemia and support beyond the acute phase.

4.4 *Main outcomes*

- a) All-cause mortality.
- b) Cardiovascular mortality.
- c) Cardiovascular events such as non-fatal reinfarction, heart failure and stroke.
- d) Measures and control of blood glucose levels.
- e) Health related quality of life.
- f) Adverse events associated with metabolic management of hyperglycaemia, including hypoglycaemia and hypokalaemia.
- g) Resource use and costs, such as length of hospital stay.

4.5 *Economic aspects*

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions. A review of the economic evidence will be conducted and analyses will be carried out as appropriate. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and the costs considered will usually be only from an NHS and personal social services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual' (see 'Further information').

The key health economic question is the cost effectiveness of intensive glucometabolic management of hyperglycaemia in inpatients with acute coronary syndromes and hyperglycaemia with or without diabetes. The full economic analysis will be developed in conjunction with the Clinical Review Group and the Guideline Development Group.

4.6 Status

4.6.1 Scope

This is the final scope.

4.6.2 Timing

The development of the guideline recommendations will begin in November 2010.

5 Related NICE guidance

5.1 Published guidance

5.1.1 Other related NICE guidance

- Liraglutide for the treatment of type 2 diabetes mellitus. NICE technology appraisal guidance 203 (2010). Available from www.nice.org.uk/guidance/TA203
- Chronic heart failure. NICE clinical guideline 108 (2010). Available from www.nice.org.uk/guidance/CG108
- Chest pain of recent onset. NICE clinical guideline 95 (2010). Available from www.nice.org.uk/guidance/CG95
- Unstable angina and NSTEMI. NICE clinical guideline 94 (2010). Available from www.nice.org.uk/guidance/CG94
- Type 2 diabetes (partial update of CG 66). NICE clinical guideline 87 (2009). Available from www.nice.org.uk/guidance/CG87
- Diabetes in pregnancy. NICE clinical guideline 63 (2008). Available from www.nice.org.uk/guidance/CG63
- Prasugrel for the treatment of acute coronary syndromes with percutaneous coronary intervention. NICE technology appraisal guidance 182 (2009). Available from www.nice.org.uk/guidance/TA182
- Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus (review). NICE technology appraisal guidance 151 (2008). Available from www.nice.org.uk/guidance/TA151

- MI: secondary prevention. NICE clinical guideline 48 (2007). Available from www.nice.org.uk/guidance/CG48
- Type 1 diabetes in children, young people and adults. NICE clinical guideline 15 (2004). Available from www.nice.org.uk/guidance/CG15
- Type 2 diabetes: prevention and management of foot problems. NICE clinical guideline 10 (2004). Available from www.nice.org.uk/guidance/CG10
- Myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction. NICE technology appraisal guidance 73 (2003). Available from www.nice.org.uk/guidance/TA73
- Guidance on the use of long acting insulin analogues for the treatment of diabetes – insulin glargine. NICE technology appraisal guidance 53 (2002). Available from www.nice.org.uk/guidance/TA53
- Guidance on the use of drugs for early thrombolysis in the treatment of acute myocardial infarction. NICE technology appraisal guidance 52 (2002). Available from www.nice.org.uk/guidance/TA52
- Guidance on the use of glycoprotein IIb/IIIa inhibitors in the treatment of acute coronary syndromes. NICE technology appraisal guidance 47 (2002). Available from www.nice.org.uk/guidance/TA47

5.2 Guidance under development

NICE is currently developing the following related guidance (details available from the NICE website):

- Ticagrelor for the treatment of acute coronary syndromes. NICE technology appraisal guidance. Publication expected July 2011.
- Long-acting exenatide for the second-line (dual therapy) or third-line (triple therapy) treatment of type 2 diabetes. NICE technology appraisal guidance. Publication date to be confirmed.
- Buccal insulin for the management of type 1 diabetes. NICE technology appraisal guidance. Publication date to be confirmed.

6 Further information

Information on the guideline development process is provided in:

- ‘How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS’
- ‘The guidelines manual’.

These are available from the NICE website

(www.nice.org.uk/GuidelinesManual). Information on the progress of the guideline will also be available from the NICE website (www.nice.org.uk).