Peri-acute Coronary Syndrome Glycemic Control

Canadian Diabetes Association Clinical Practice Guidelines Expert Committee

INTRODUCTION
Patients with diabetes mellitus have greater short-term and long-term mortality after acute myocardial infarction (MI) than patients without diabetes, even in the era of thrombolytic therapy (1,2). Diabetes is also an independent predictor of mortality following other acute coronary syndromes (ACSs), such as unstable angina or non-Q-wave MI (3). Even in patients without a previous diagnosis of diabetes, hyperglycemia on admission for an acute MI is associated with higher mortality (4-6). These cases may represent previously unrecognized diabetes or glucose intolerance (7).

GLYCEMIC CONTROL
Biochemical abnormalities associated with relative (or absolute) insulin deficiency may be harmful during the acute phase of MI (8). Studies that have examined glucose-insulin-potassium (GIK) infusion therapy in patients presenting with an acute MI, regardless of their admission blood glucose (BG) level, have yielded variable results, and its routine use remains controversial (9).

Insulin therapy in patients with diabetes presenting with an acute MI has been shown to be beneficial. The Diabetes Mellitus Insulin Glucose Infusion in Acute Myocardial Infarction (DIGAMI) study compared the use of conventional therapy to an insulin-glucose infusion to maintain BG levels between 7.0 and 10.0 mmol/L for at least 24 hours, followed by multidose SC insulin for at least 3 months [Grade A, Level 1A (10,11)]. An appropriate protocol should be developed and staff trained to ensure the safe and effective implementation of this therapy and to minimize the likelihood of hypoglycemia [Grade D, Consensus].

RECOMMENDATION
1. All patients with acute MI, regardless of whether or not they have a prior diagnosis of diabetes, should have their BG level measured on admission [Grade D, Consensus], and those with BG >12.0 mmol/L should receive insulin-glucose infusion therapy to maintain BG between 7.0 and 10.0 mmol/L for at least 24 hours, followed by multidose SC insulin for at least 3 months [Grade A, Level 1A (10,11)]. An appropriate protocol should be developed and staff trained to ensure the safe and effective implementation of this therapy and to minimize the likelihood of hypoglycemia [Grade D, Consensus].

REFERENCES
6. Wahab NN, Cowden EA, Pearce NJ, et al. Is blood glucose an independent predictor of mortality after an ACS (3)? use of an insulin-glucose infusion to improve glycemic control in the acute setting may be beneficial for all patients with diabetes presenting with an ACS. Patients who are treated with a multidose insulin regimen after an MI should be followed closely by a diabetes healthcare team with experience in managing intensified insulin therapy in order to safely maintain optimal glycemic control.