Cardiovascular Health Nova Scotia Guideline Update

Nova Scotia Guidelines for Acute Coronary Syndromes (Updating the 2008 Diabetes sections of the Guidelines)

Authors: Dr. M. Love, Kathy Harrigan

Reviewers: Dr. Jafna Cox, Diabetes Care Program of Nova Scotia, Division of Endocrinology, QEII Health Sciences Centre

ST Elevation Myocardial Infarction Section: Diabetes Update (October 2014)

2008 Recommendation		**2014 Recommendation**		**Rationale for change**
Additional Immediate and Inpatient Treatment of Definite STEMI				
None	None	**18 a (*New*)**	Blood glucose should be measured on admission and monitored throughout hospitalization [Grade D Consensus[1]]; all patients with acute coronary syndromes should be screened for diabetes prior to hospital discharge (fasting plasma glucose, random plasma glucose or *A1C). adapted from [1] *Note: *Caution in interpretation of AIC as a diagnostic tool in the elderly, certain ethnicities and with values between 6.5% -7.0%.* [Consensus Nova Scotia 2014]	New Recommendation

2008 Recommendation		2014 Recommendation		Rationale for change
			[See Appendix A: **Diagnostic Criteria for Diabetes Mellitus** and Appendix B: **Prediabetes]**	
None	None	**18 b (*New*)**	All patients with diabetes and ACS should receive the same treatments that are recommended for patients with ACS without diabetes since they benefit equally [Grade D, Consensus[1]]	New Recommendation
18 a	Tight glycemic control is advised for all STEMI patients who present with hyperglycemia (random BG >11.0, or fasting BG >7.0 mmol/L).[2,3] [Consensus Nova Scotia 2007]	**18 c (formerly 18 a)**	Patients with acute myocardial infarction and blood glucose >11.0 mmol/L on admission may receive glycemic control in the range of 7.0 to 10.0 mmol/L**, followed by strategies to achieve recommended glucose targets long term [Grade C, Level 2[1]]. *Note: ** Caution should be applied to avoid over-management of the frail elderly.[Consensus Nova Scotia 2014]*	Modified Recommendation (Split recommendation into separate recommendations, text changed)
18 a (2nd sentence)	During the first 48 hours there should be a low threshold for	**18 d (*formerly part of 18 a*)**	Insulin therapy may be required to achieve these targets (7-10	Modified Recommendation (text

2008 Recommendation		2014 Recommendation		Rationale for change
	use of insulin to maintain a BG of 7.0-10.0 mmol/L. After 48 hours, standard diabetes management is recommended including oral antihyperglycemic agents and/or insulin as appropriate. [3] [Consensus Nova Scotia 2007]		mmol/L) [Grade D Consensus [1]]. A similar approach may be taken in those with diabetes and admission blood glucose ≤11.0 mmol/L [Grade D Consensus [1]].	changed)
None	None	**18 e (*New*)**	In hospital management of patients with STEMI and diabetes should include strategies to avoid both hypoglycemia and hyperglycemia.[1] 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[1]].	New Recommendation
18 b	Caution is recommended in considering the use of thiazolidinediones in patients with cardiovascular disease. [4]	**18 f *(formerly 18 b)***	Thiazolidinediones (TZD) may induce edema and/or heart failure and are contraindicated in patients with known clinical heart	Modified Recommendation (updated text)

2008 Recommendation		2014 Recommendation		Rationale for change
			failure or evidence of left ventricular diastolic dysfunction on echocardiogram or other heart imaging.[1] Higher rates of heart failure exist when combined with insulin[1], and the combination of insulin and TZD is not approved in Canada. The safety of other oral hypoglycemic agents in patients at high cardiac risk is a rapidly evolving field, and for this reason consideration should be given to referring these patients to a physician with expertise in diabetes. [Consensus Nova Scotia 2014]	
18 c	The long term therapy goals should conform to the current CDA guidelines [5]: fasting BG 4.0-7.0 mmol/L and A1C≤ 7.0%, if achievable safely. [*Consensus Nova Scotia 2007*]	Moved to secondary preventive therapy section		

2008 Recommendation		2014 Recommendation		Rationale for change
Non-pharmacologic Secondary Preventive Therapy				
25 Diabetes Education		**25 Diabetes Education**		
		25 a (formerly 18c)	The long-term therapy goals should conform to the current Canadian Diabetes Association guidelines: fasting BG 4.0–7.0 mmol/L, 2 hour post prandial 5-10 mmol/L and A1C ≤7.0%, if achievable safely.[Grade B Level 2[1]]. *Note: Less stringent A1C targets (7.1%-8.5%) are recommended for those with limited life expectancy, multiple morbidities, risk of severe hypoglycemia/hypoglycemia unawareness, extensive cardiovascular disease, individual patient considerations, etc.* [1]	
25 a	STEMI patients with diabetes should be offered initial and ongoing needs-based diabetes education in a timely manner to	**25 b (*formerly 25 a*)**	STEMI patients with diabetes should be offered initial and ongoing needs-based diabetes self-management education in a	

2008 Recommendation		2014 Recommendation		Rationale for change
	enhance self-care practices and behaviours.[5]		timely manner to enhance self-care practices and behaviours. [*Consensus Nova Scotia 2014]*	
25 b	Referral to a Diabetes Education Centre (DEC) for ongoing education and management of diabetes and cardiac risk factors is recommended. Visit www.diabetescareprogram.ns.ca for DEC locations in Nova Scotia.	**25 c (*formerly 25 b*)**	Referral to a Diabetes Centre (DC) is also recommended for ongoing self-management education and the review/timely revision of an individualized care plan to address diabetes and cardiac risk factors. Visit: http://diabetescare.nshealth.ca/ for DC locations in Nova Scotia. Consideration should also be given to refer the patient to a physician with diabetes expertise to evaluate global cardiovascular risk reduction. [Consensus Nova Scotia 2014]	

References

1 Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Can J Diabetes.* 2013; 37(suppl 1):S1-S212.

2 Cheung NW, Wong VW, McLean M. The Hyperglycemia: Intensive Insulin Infusion in Infarction (HI-5) Study: A randomized controlled trial of insulin therapy for myocardial infarction. *Diabetes Care.* 2006; 29(4):765-770.

3 Malmberg K. Prospective randomized study of intensive insulin treatment on long term survival after acute myocardial infarction in patients with diabetes mellitus. DIGAMI Study Group. *BMJ.* 1997; 314(7093):1512-1515.

4 New restrictions on the use of rosiglitazone products due to cardiac safety concerns (AVANDIA™ Avandamet™ and AVANDARYL ™). (November 1, 2007). Drugs & Health Products, Health Canada website. Available at http://www.hc-sc.ca/dhp-mps/medeff/advisories-avis/prof/2007/avandia_hpc-cps_5_e.html. Accessed March 15, 2008.

5 Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2003 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Can J Diabetes.* 2003; 279(suppl 2):S1-152.

Appendix A

DIAGNOSTIC CRITERIA FOR DIABETES MELLITUS IN THE NONPREGNANT ADULT:

Screen Type	Diagnostic Value	Comments
Fasting Plasma Glucose **OR**	≥7.0 mmol/L	No caloric intake for at least 8 hours
Random plasma glucose **OR**	≥11.1 mmol/L	Any time of the day, without regard to time since last meal. Confirm with an alternate test.
2-hr sample of 75g OGTT **OR**	≥ 11.1 mmol/L	
AIC	≥6.5%	A1C may be misleading in those with hemoglobinopathies, iron deficiency, hemolytic anaemias, severe hepatic, and renal disease. There are also variations in non-Caucasian ethnicities and the elderly. [Note: A1C should not be used to diagnose children, adolescents, pregnant women or those suspected of Type 1 diabetes mellitus]
For all of the above, in the absence of symptomatic hyperglycemia, a repeat confirmatory laboratory test must be done on another day.		

Diabetes Care Program of Nova Scotia, 2014

8 Final, October 2014

Appendix B.

PREDIABETES-IMPAIRED FASTING GLUCOSE (IFG) & IMPAIRED GLUCOSE TOLERANCE (IGT)

DIAGNOSIS	RESULT	COMMENTS
Impaired Fasting Glucose (IFG)	Fasting Plasma Glucose (FPG) of 6.1 – 6.9 mmol/L.	
Impaired Glucose Tolerance (IGT)	FPG of < 6.1 mmol/L and a 2-hr (post 75g glucose load) PG of 7.8 mmol/L - 11.0 mmol/L.	
IFG & IGT	FPG of 6.1 – 6.9 mmol/L and a 2-hr (post 75g glucose load) PG of 7.8 mmol/L - 11.0 mmol/L.	
PREDIABETES	A1C 6.0 - 6.4%	A1C may be misleading in those with hemoglobinopathies, iron deficiency, hemolytic anaemias, severe hepatic, and renal disease. There are also variations in non-Caucasian ethnicities and the elderly.
INTERVENTIONS: Lifestyle modifications; annual rescreening		

Diabetes Care Program of Nova Scotia, 2014