Clinical*DIGEST 1*

Diabetes journals

CVD risk algorithm low sensitivity and specificity

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

1 Cardiovascular disease (CVD) is the leading cause of death among people with T2D.

2 The authors sought to establish an algorithm that would identify people with T2D at high risk of ischaemic heart disease by examining the prevalence of myocardial ischaemia in a T2D population.

3 Participants (n=305) with T2D (diabetes duration, 4.5±5.3 years), referred consecutively to a diabetes clinic for the first time, were recruited if they had no known or suspected CVD and were screened for myocardial ischaemia using myocardial perfusion scintigraphy.

4 The univariate predictors of myocardial ischaemia used as risk predictors for the algorithm included atypical or typical angina pectoris, two or more traditional risk factors for CVD, including BMI >32 kg/m^2, systolic blood pressure >140 mmHg, HbA$_{1c}$ level >8.5%.

5 The algorithm's low- (n=96), intermediate- (n=65) and high-risk groups (n=115) corresponded to prevalences of myocardial ischaemia of 15%, 23% and 43%, respectively.

6 While the algorithm reduced the number of people referred for myocardial perfusion scintigraphy from 305 to 144, the sensitivity and specificity were poor (68% and 62%, respectively).

7 The algorithm was time-intensive and expensive. Coupled with the low sensitivity and specificity, the authors concluded that the algorithm could not be recommended for wider clinical used.

Poulsen MK, Henriksen JE, Vach W et al (2010) Identification of asymptomatic type 2 diabetes mellitus patients with a low, intermediate and high risk of ischaemic heart disease: is there an algorithm? *Diabetologia* **53**: 659–67

Forget algorithms – treat all people with diabetes as being at high risk of CVD

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Cardiovascular disease (CVD) remains the leading cause of premature death in people with type 2 diabetes. Poulsen et al (2010; summarised alongside) tried to establish a clinically useful algorithm to determine those people with type 2 diabetes who were at low, intermediate or high risk of myocardial ischaemia.

The population studied was a cross-sectional group of people with type 2 diabetes and no history of ischaemic heart disease determined by myocardial perfusion scintigraphy (MPS). Univariate predictors of myocardial ischaemia were two or more of the traditional risk factors (e.g. eleveated BMI, systolic blood pressure, HbA$_{1c}$ level, carotid or peripheral artery disease and typical of atypical angina pectoris). Interestingly, the authors reported that the Framingham Risk Score (Wilson et al, 1998) and the UKPDS (UK Prospective Diabetes Study) Risk Engine (Diabetes Trials Unit, 2009) both failed to predict those in the cohort at low risk of ischaemic heart disease on MPS.

While the multivariate algorithm resulted in a reduction in the number of people referred for MPS, it had low sensitivity and specificity. Furthermore, use of the algorithm proved to be time-consuming and expensive.

Clinically, the conclusion is clear: continue to aggressively treat all traditional CVD risk factors – blood pressure, glycaemic control, lipid profiles and manifest atheromatous disease. Attempts at a more sophisticated stratification of risk using algorithms has failed, in this study at least.

> *"Clinically, the conclusion is clear: continue to aggressively treat all traditional CVD risk factors ..."*

Diabetes Trials Unit (2009) *UKPDS Risk Engine, version 2.0.* Diabetes Trials Unit, Oxford. Available at: www.dtu.ox.ac.uk/riskengine (accessed 27.07.10)

Wilson PW, D'Agostino RB, Levy D et al (1998) Prediction of coronary heart disease using risk factor categories. *Circulation* **97**: 1837–47

Conflicting results for best exercise type in T2D

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

1 The authors of the DARE (Diabetes Aerobic and Resistance Exercise) study investigated whether aerobic exercise, resistance exercise or a combination of both were most effective at improving glycaemic control and health status in people with T2D.

2 Participants were sedentary people with T2D (n=218) randomised in parallel to 22 weeks of aerobic exercise (n=51), resistance exercise (n=58), combined aerobic and resistance exercise (n=57) or no exercise (n=52).

3 Outcomes were assessed by physical and mental scores for the Medical Outcomes Trust Short-Form and the Well-Being Questionnaire).

4 Clinically, but not statistically, significant improvements in physical component score were found for the resistance exercise group compared with aerobic exercise (P=0.048) and no exercise (P=0.015). Clinically important improvements for mental component scores favoured no exercise compared with resistance and combined exercise (P<0.001).

5 Wellbeing was unchanged by intervention, while resistance exercise improved physical health status most and no exercise was superior for improving mental health status.

Reid RD, Tulloch HE, Sigal RJ et al (2010) Effects of aerobic exercise, resistance exercise or both, on patient-reported health status and well-being in type 2 diabetes mellitus: a randomised trial. *Diabetologia* **53**: 632–40