Diabetes journals

DIABETOLOGIA

Mean blood glucose a better predictor of CV complications than HbA_{1c} in T1D

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

1 Data from the Diabetes Control and Complications Trial were analysed to assess the relationship between mean blood glucose, HbA_{1c} and blood glucose variability and the risk of cardiovascular disease in people with type 1 diabetes.

2 During the Diabetes Control and Complications Trial, pre- and postprandial seven-point blood glucose profiles were collected quarterly for 1441 participants, and the relationship between time to first cardiovascular event and mean blood glucose, HbA_{1c} and daily standard deviation of blood glucose was assessed using Cox's regression analysis.

3 Mean blood glucose was predictive of a cardiovascular event, but HbA_{1c} was not: a rise of 1mmol/l in mean blood glucose was related to an 11% rise in cardiovascular risk.

4 During the DCCT, mean blood glucose was a better predictor of macrovascular complications of type 1 diabetes than HbA_{1c}.

5 The authors suggest that the cardiovascular risk associated with hyperglycaemia appeared within the study period and that mean blood glucose may be the better means of assessing cardiovascular risk.

Kilpatrick ES, Rigby AS, Atkin SL (2007) Mean blood glucose compared with HbA1c in the prediction of cardiovascular disease in patients with type 1 diabetes. *Diabetologia* **51**: 365–71

Risk of macrovascular complications may be better predicted by mean blood glucose levels

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The relationship between mean blood glucose level and the risk for macrovascular complications continues to be controversial, especially as to whether this relationship varies from that seen with HbA_{1c}. Consequently, data from the DCCT study (summarised alongside) enabled the assessment of a relationship between mean blood glucose level, HbA_{1c} and glucose variability with regard to the level of cardiovascular risk in people with type 1 diabetes.

Pre- and postprandial seven-point glucose profiles were collected every 3 months during the study period from 1441 individuals. The relationship between timed first cardiovascular event and mean blood glucose level, HbA_{1c} and daily standard deviation of blood glucose was assessed using Cox's regression analysis, after adjusting for known risk factors for macrovascular disease.

Mean blood glucose level was demonstrated to be predictive of cardiovascular events (P=0.019) but HbA_{1c} was not (P=0.858). A rise of 1mmol/l in mean blood glucose was associated with an 11% increase in cardiovascular risk. In this study, mean blood glucose levels remained highly predictive, even after adjustment for HbA_{1c} and glucose variability. Consequently, it is suggested that this evaluation of data from the DCCT reveals mean blood glucose as a better predictor of macrovascular complications in type 1 diabetes than HbA_{1c}.

During the DCCT, mean blood glucose was a better predictor of macrovascular complications of type 1 diabetes than HbA_{1c}

DIABETES CARE

Additive effect of cardiovascular autonomic neuropathy on left ventricular diastolic dysfunction in T1D

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

1 Conventional and tissue Doppler imaging (TDI)-derived indexes of left ventricular (LV) systolic and diastolic function in 44 people with type 1 diabetes with and without cardiovascular autonomic neuropathy (CAN) and 21 control participants was examined.

2 Participants with diabetes and CAN had a greater impairment of diastolic function than those without CAN and the control group.

3 The significant difference in LV diastolic performance between the two groups with diabetes was identified only with TDI, but LV systolic function in the group with type 1 diabetes seemed unimpaired compared with the control group, irrespective of the presence of CAN.

4 TDI was the preferred modality, as it is more sensitive and less dependent on confounders.

5 The presence of CAN has an additive effect on LV diastolic dysfunction in people with type 1 diabetes

Karamitsos TD, Karvounis HI, Didangelos T, Parcharidis GE, Karamitsos DT (2008) Impact of autonomic neuropathy on left ventricular function in normotensive type 1 diabetic patients: a tissue Doppler echocardiographic study. *Diabetes Care* **31**: 325–27

'The results of the study showed that being of African–American origin, degree of obesity, use of insulin and not using lipid-lowering therapy were associated with not meeting target values.'

JOURNAL OF DIABETES AND ITS COMPLICATIONS

Only 1 in 10 people meet key diabetes targets

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

1 The authors of this study examined the characteristics of people with diabetes that were associated with meeting targets for HbA_{1c}, blood pressure and LDL cholesterol.

2 Baseline data from 5145 individuals who participated in the Look AHEAD study were obtained. As well as HbA_{1c}, blood pressure and LDL cholesterol, medical history, demographics and anthropometry were measured.

3 At baseline, 45.8% of the study group had an HbA_{1c}<7.0%, 51.7% had a blood pressure<130/80mmHg and 37.2% had an LDL cholesterol level<100mg/dl.

4 Only 10.1% of all study participants achieved all three target values.

5 The results of the study showed that being of African–American origin, degree of obesity, use of insulin and not using lipid-lowering therapy were associated with not meeting target values.

Bertoni AG, Clark JM, Feeney P et al (2008) *Journal of Diabetes and its Complications* **22**: 1–9

DIABETIC MEDICINE

Microalbuminuria and T2D are risk factors for CVD

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

1 The impact of type 2 diabetes and microalbuminuria on future cardiovascular disease (CVD) events were examined.

2 People with clinically manifest vascular disease from the Second Manifestation of Arterial disease study were followed up for 4 years. At baseline, 804 people had type 2 diabetes and 2983 did not.

3 Univariate analyses indicated that both type 2 diabetes and microalbuminuria increased the risk of new CVD events.

4 Multivariate models and stratified analyses showed that microalbuminuria and type 2 diabetes are independent and important risk factors for future CVD.

Soedamah-Muthu SS, Visseren FL, Algra A, van der Graaf Y, on behalf of the SMART Study Group (2008) *Diabetic Medicine* **25**: 51–57

DIABETES CARE

OGTT detects glucose abnormalities in MI

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1 Long-term reliability of early glucometabolic classification of people with acute myocardial infarction (MI) by repeated oral glucose tolerance tests (OGTTs) was evaluated.

2 Measuring capillary whole-blood glucose led to the development of a glucometabolic OGTT-based classification, which was performed before hospital discharge, and 3 and 12 months later.

3 At discharge, 34% of the 122 participants had normal glucose tolerance, 31% had impaired glucose tolerance and 34% had type 2 diabetes; after 12 months, 93% of people with type 2 diabetes remained classified with it.

4 OGTT performed in people with acute MI at discharge reliably informs on long-term glucometabolic state.

Wallander M, Malmberg K, Norhammar A, Rydén L, Tenerz A (2008) Oral glucose tolerance test: a reliable tool for early detection of glucose abnormalities in patients with acute myocardial infarction in clinical practice: a report on repeated oral glucose tolerance tests from the GAMI study. *Diabetes Care* **31**: 36–38

DIABETIC MEDICINE

Vascular disease and diabetes are more prevalent in more deprived populations

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

1 Influence of deprivation on prevalence of diabetes and of cardiovascular disease risk factors in people with diabetes was investigated in a cross-sectional study of 52 280 people in diabetes registers.

2 Prevalence of diabetes increased from 2.3% in the least deprived quintile to 3.3% in the most deprived quintile, as did prevalence of vascular disease.

3 Prevalence of above-target HbA_{1c}, obesity and current smoking were higher in the most deprived quintile.

4 The proportion of people with above-target cholesterol were similar between groups, and the proportion of people with above-target systolic blood pressure was lower in the most deprived quintile.

5 Deprivation was associated with failure to reach cholesterol targets in people with diabetes who had vascular disease.

6 The burden of vascular disease and diabetes is higher in more deprived areas.

Wild S, Macleod F, McKnight J (2008) Impact of deprivation on cardiovascular risk factors in people with diabetes: an observational study. *Diabetic Medicine* **25**: 194–99