Major journals

NEW ENGLAND JOURNAL OF MEDICINE

Intensive therapy for glycaemic control not associated with increased CV risk

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

1 Although many studies have outlined the association of type 2 diabetes with increased risk of cardiovascular disease, the additional effect of intensive glucose control therapy is not known.

2 This study aimed to compare the effect of two glucose control regimes – standard insulin control and intensive glucose control – on risk of cardiovascular disease in people with type 2 diabetes. Intensive treatment was defined as an aim to lower HbA_{1c} levels by 1.5 percentage points.

3 The primary outcome measure of this study was the time to first occurrence of a cardiovascular event, such as stroke or myocardial infarction, and individuals were followed for a median of 5.6 years.

4 A total of 264 people in the standard glucose control group experienced a cardiovascular event, compared with 235 in the intensive glucose control group, and no significant difference was observed in the rate of cardiovascular events between groups. In addition, no significant differences in microvascular events were observed between groups.

5 The authors concluded that intensive glucose lowering therapy is not associated with an increased risk of cardiovascular events in people with type 2 diabetes.

Duckworth W, Abraira C, Moritz T et al (2009) Glucose control and vascular complications in veterans with type 2 diabetes. *N Engl J Med* **360**: 129–39

Intensive glucose lowering in the VADT study did not increase risk of cardiovascular events in people with type 2 diabetes

Jiten Vora, Consultant Physician, Royal Liverpool University Hospital

The effects of improved glycaemia on cardiovascular and microvascular events in people with long-standing type 2 diabetes remain uncertain. In the study summarised alongside, the Veteran's Affairs Diabetes Trial (VADT), 1791 participants were randomly assigned to receive intensive or standard glucose control treatment for previously suboptimal response to therapy. Other cardiovascular risk factors had been treated throughout the groups. Mean duration of diabetes was 11.5 years, and 40% of participants had already experienced a cardiovascular event.

For the intensive treatment group, the aim of the study was to achieve a separation of 1.5% in HbA_{1c}, as compared with the standard therapy group. The primary outcome was the time from initiation of the study therapy to the first occurrence of a major cardiovascular event, such as myocardial infarction, stroke, death from cardiovascular causes, congestive heart failure, cerebrovascular disease, operated coronary disease and amputation for ischaemic gangrene.

With a follow-up of a median of 5.6 years, the median HbA_{1c} was 8.4% in the standard therapy group and 6.9% in the intensively treated group. The primary outcome was achieved in 264 participants in the standard therapy group, compared with 235 participants in the intensively treated group. There were no significant differences between the two groups in any component of primary outcome, and the results were not significant. Additionally, no differences were observed between the two groups for microvascular complications. However, adverse events, such as hypoglycaemia, occured in 17.6% of the standard therapy group, compared with 21.4% of the intensively treated group.

Based on the results of this study, intensive glycaemic control in people with poorly controlled type 2 diabetes of approximately 10-years' duration appears to produce no significant effect on the rates of major cardiovascular events or microvascular complications.

ARCHIVES OF INTERNAL MEDICINE

Novel risk factors identified for end-stage renal disease

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

1 Renal disease is closely associated with diabetes. However, the factors affecting increased risk of end-stage renal disease (ESRD) overall have not been studied in detail.

2 In this study, the authors analysed data from 177 570 volunteers attending health check-ups between 1964 and 1973; details of individuals registering for ESRD therapy were obtained in 2000.

3 Overall, a total of 5 275 957 person-years of follow-up were studied. Of these, 842 cases of ESRD were observed.

4 The study results agreed with established risk factors for ESRD: being male, older age, proteinuria, diabetes, lower level of education, being of African-American origin, higher blood pressure, BMI, and serum creatinine level.

5 The two most important risk factors for developing ESRD were being overweight or obese and having increased levels of proteinuria.

6 Independent risk factors for ESRD were also identified, and included lower haemoglobin levels, increased uric acid levels and, importantly, family history of kidney disease.

Hsu C-Y, Iribarren C, McCulloch CE et al (2009) Risk factors for end-stage renal disease: 25-year follow-up. *Arch Intern Med* **169**: 342–50

"A significant association was determined between longer sleep duration and reduced incidence of artery calcification (P=0.01)."

ARCHIVES OF INTERNAL MEDICINE

High fasting glucose linked to increased risk of death

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

1 People with increased blood glucose levels are generally associated with a worse outcome after myocardial infarction. However, the effect of fasting blood glucose levels on outcomes after a cardiovascular event is not known.

2 This study aimed to assess the relationship between elevated fasting blood glucose levels and cardiovascular outcome at different ST-segment elevation and non-ST-segment elevation levels.

3 High levels of fasting glucose were associated with increased risk of in-hospital death, as well as a higher risk of death 6 months after hospital discharge; all increased risks identified were irrespective of whether an individual had diabetes or not.

Sinnaeve PR, Steg PG, Fox KA et al (2009) Association of elevated fasting glucose with increased short-term and 6-month mortality in ST-segment elevation and non-ST-segment elevation acute coronary syndromes: the Global Registry of Acute Coronary Events. *Arch Intern Med* **169**: 402–9

JAMA

Longer sleep associated with low incidence of artery calcification

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

1 Sleep duration has been correlated as a risk factor for coronary artery calcification, which in turn can help predict coronary heart disease.

2 This study aimed to assess coronary artery calcification in an observational cohort of 495 healthy individuals over a 5-year period to establish the association of sleep duration and quality, as well as any confounding risk factors, on incidence of calcification and subsequent risk of coronary heart disease.

3 A significant association was determined between longer sleep duration and reduced incidence of artery calcification (P=0.01); this association was found to be independent of all examined confounding factors.

King CR, Knutson KL, Rathouz PJ et al (2008) Short sleep duration and incident coronary artery calcification. *JAMA* **300**: 2859–66

AMERICAN JOURNAL OF MEDICINE

Metabolic syndrome and obesity are contributing factors for CHD risk

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

1 A key risk factor for atherosclerotic coronary heart disease (CHD) is obesity, which, in turn, is linked to increased blood pressure, dyslipidaemia and increased blood glucose levels.

2 Metabolic syndrome is defined as the simultaneous occurrence of all major CHD risk factors in the same person, is also characterised by obesity. Adiposopathy ("sick fat") is characterised by the increased presence of free fatty acids in the blood stream, that contribute towards increased CHD risk.

3 A direct relationship exists between adipose tissue-related risk factors and metabolic disease-related obesity, that can eventually lead to development of increased risk factors for CHD.

Bays HE (2009) "Sick fat," metabolic disease, and atherosclerosis. *Am J Med* **122**: S26–37

AMERICAN JOURNAL OF MEDICINE

African-American origin increases risk for kidney disease progression

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

1 Previous studies have shown that being of African-American origin carries increased risk for kidney disease; the combined risk of being of African-American origin and having type 2 diabetes, however, is not known.

2 This longitudinal analysis included 186 people of African-American origin with type 2 diabetes; 85% of participants were female.

3 At baseline, the participants' mean estimated glomerular filtration rate was 75.90 mL/min/1.73m^2 and the urinary albumin:creatinine ratio was 1.62. Macroalbuminuria was identified in 39 of the study participants, and microalbuminuria in 60 participants.

4 Progression from microalbuminuria to macroalbuminuria was observed in 19 people, and was significantly associated (P<0.05) with increased systolic blood pressure (≥115 mmHg) and a need for medication to control blood pressure.

5 Multivariate analyses showed that progression to macroalbuminuria was also independently associated with the degree of albumin:creatinine ratio, as well as need for blood pressure medication. The type of antihypertensive medication was not significantly associated with kidney disease progression.

6 The authors concluded that blood pressure and degree of microalbuminuria are key determinants of kidney disease progression in people of African-American origin with type 2 diabetes.

Atta MG, Baptiste-Roberts K, Brancati FL, Gary TL (2009) The natural course of microalbuminuria among African Americans with type 2 diabetes: a 3-year study. *Am J Med* **122**: 62–72