Major journals

LANCET

Statin therapy confers low diabetes risk

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

1 It is well recognised that statin therapy is safe and effective for the reduction of cardiovascular (CV) event risk. However, six large trials have reported conflicting findings on whether statin therapy increases the risk of developing diabetes.

2 To determine the safety of long-term statin therapy, a meta-analysis was performed on all data from large (>1000 participants), placebo- and standard-care-controlled trials of statin therapy lasting more than 1 year.

3 Analyses of data included the I^2 statistic to determine between-trial heterogeneity and random-effects meta-analysis to calculate risk estimates for incident diabetes.

4 The study comprised 13 statin trials with 91 140 participants without diabetes at baseline.

5 In total, 4278 people developed diabetes during a mean follow-up of 4 years: 2226 people were assigned to statin therapy and 2052 people were assigned to control treatment.

6 There were 174 more cases of incident diabetes in the statin treatment groups compared with the placebo or standard-care groups, representing a 9% increased risk of developing diabetes during follow-up.

7 In absolute terms, this represents one extra case of diabetes per 255 people taking statin therapy for 4 years.

8 The authors concluded that, as statin therapy confers a low risk of developing diabetes, treatment of people with moderate or high CV risk should not change.

Sattar N, Preiss D, Murray HM et al (2010) Statins and risk of incident diabetes: a collaborative meta-analysis of randomised statin trials. *Lancet* **375**: 735–42

Does statin therapy increase the risk of type 2 diabetes?

Vinod Patel, Consultant Physician at the George Eliot Hospital, Nuneaton, and Associate Professor at the University of Warwick

Clinicians often have patients that are confused about the role of statins in primary prevention and their specific benefits and risks. Whether statins are currently "in" or "out" depends a lot on the media!

In the West of Scotland Coronary Prevention Study (Freeman et al, 2001), primary prevention with pravastatin reduced diabetes risk; however, Ridker et al (2008) found the risk of diabetes to be increased in the JUPITER (Justification for the Use of Statins in Primary Prevention: An Intervention Trial Evaluating Rosuvastatin) trial.

Sattar et al (2010; summarised alongside) present a well-designed piece of work to answer the question of whether statins increase the risk of type 2 diabetes. In this meta-analysis, 13 statin trials were studied involving 91 140 participants. Statins were found to be associated with a 9% increase in the risk of type 2 diabetes, but no specific statin had a higher risk than any other.

Translating this into meaningful information for the individual; one extra case of diabetes is expected if 255 people are treated with statins for 4 years, or one extra case for 1000 person-treatment years. However, another meta-analysis showed that statin therapy was associated with a reduction in 5.4 major coronary events (coronary heart disease death and non-fatal myocardial infarction) per 255 people treated for 4 years.

What can be learnt from this study is that people with a moderate or high cardiovascular risk would be best advised to continue statin therapy; those at low cardiovascular risk or those in whom there is no clear evidence of benefit from statin therapy should have the above increased risk of diabetes conferred by statins computed into the final person-centred clinical decision.

Freeman DJ, Norrie J, Sattar N et al (2001) Pravastatin and the development of diabetes mellitus: evidence for a protective treatment effect in the West of Scotland Coronary Prevention Study. *Circulation* **103**: 357–62

Ridker PM, Danielson E, Fonseca FA et al (2008) Rosuvastatin to prevent vascular events in men and women with elevated C-reactive protein. *N Engl J Med* **359**: 2195–207

LANCET

Prevalence of type 2 diabetes is increasing in Asia

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

1 This article discusses the increasing prevalence of type 2 diabetes in Asian populations.

2 The rapidly increasing rate of diabetes is linked with a strong gene–environmental interaction, which is exacerbated by lifestyle changes as a result of modernisation.

3 As diabetes develops at least a decade earlier in Asian populations than in white populations, young-onset and type 2 diabetes in children are more common.

4 This rising trend is associated with epigenetic factors, such as maternal imprinting, and to the increasing rate of obesity in children in Asia.

5 Asian people have a high prevalence of insulin resistance and the metabolic syndrome, even at a young age, which increases their risk of cardiovascular (CV) disease.

6 Asian people with diabetes are at a high risk of developing long-term diabetes complications, especially when glycaemic control is poor; an estimated 30% of people with type 2 diabetes in Asia have diabetic retinopathy.

7 Improved education to prevent obesity and other risk factors, effective diabetes and CV risk factor management and the development of a better standard of care are urgently needed in this high-risk population.

Ramachandran A, Ma RCW, Snehalatha C (2010) Diabetes in Asia. *Lancet* **375**: 408–18

"A tailored treatment approach to statin therapy gives superior results to a treat-to-target approach."

NEW ENGLAND JOURNAL OF MEDICINE

Childhood CV risk factors linked with premature death

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

1 This study aimed to determine the extent that obesity, glucose intolerance, hypertension and hypercholesterolaemia predicted premature death in 4857 American Indian children (mean age 11.3 years) without diabetes.

2 Cox-proportional hazard models were used to determine associations between childhood CV risk factors and premature death; a cut-off of 55 years was used.

3 During a median follow-up of 23.9 years, 166 people died from endogenous causes: 59 caused by alcoholic liver disease; 22 by CV disease; 21 by infection; 12 by cancer; 10 by diabetes; 9 by acute alcoholic poisoning or drug overdose; and 33 by other causes.

4 BMI was positively associated with premature death from endogenous causes; children in the highest quartile of BMI were more than twice as likely to die prematurely than those in the lowest quartile (incidence-rate ratio, 2.30; 95% confidence interval [CI], 1.46–3.62).

5 Children in the highest quartile of glucose intolerance had a 73% higher risk of premature death than those in the lowest quartile (incidence-rate ratio, 1.73; 95% CI, 1.09–2.74).

6 Childhood hypertension increased the risk of premature death by 57% (95% CI, 1.10–2.24).

7 The authors concluded that childhood obesity, glucose intolerance and hypertension were strongly associated with increased rates of premature death, while childhood hypercholesterolaemia was not.

Franks PW, Hanson RL, Knowler WC et al (2010) Childhood obesity, other cardiovascular risk factors and premature death. *N Engl J Med* **362**: 485–93

ARCHIVES OF INTERNAL MEDICINE

DASH diet and exercise improve BP

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

1 This study looked at the effects of the Dietary Approaches to Stop Hypertension (DASH) diet alone or with weight management (exercise and weight loss) versus usual diet controls in 144 overweight people with high blood pressure (BP) and no medication.

2 The DASH diet significantly reduced BP compared with usual diet controls: BP was reduced by 16.1/9.9 mmHg for DASH plus weight management; by 11.2/7.5 mmHg for DASH alone and by 3.4/3.8 mmHg for usual diet controls ($P<0.001$).

3 Both DASH interventions were found to improve cardiovascular biomarkers, although greater improvements were seen in the DASH plus weight management group.

Blumenthal JA, Babyak MA, Hinderliter A et al (2010) Effects of the DASH diet alone and in combination with exercise and weight loss on blood pressure and cardiovascular biomarkers in men and women with high blood pressure. *Arch Intern Med* **170**: 126–35

ANNALS OF INTERNAL MEDICINE

Tailored treatment approach better for statin therapy

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

1 The usual approach to statin therapy for the prevention of coronary artery disease (CAD) is the "treat-to-target" strategy, where statins are titrated to achieve particular lipid level targets.

2 An alternative approach is the "tailored treatment" strategy, where fixed doses of statins are calculated on the basis of a person's 5-year CAD risk.

3 This study compared these two treatment strategies to minimise CAD risk in a simulated USA population representing people aged 30–75 years with no history of myocardial infarction.

4 The tailored treatment strategy saved 500 000 more quality-adjusted life years (i.e. prevented more CAD morbidity and mortality) than the treat-to-target approach.

5 The tailored treatment strategy also reduced the number of people treated with high-dose statin therapy.

6 The authors concluded that a tailored treatment approach to statin therapy gives superior results to a treat-to-target approach.

Hayward RA, Krumholz HM, Zulman DM et al (2010) Optimising statin treatment for primary prevention of coronary artery disease. *Ann Intern Med* **152**: 69–77

NEW ENGLAND JOURNAL OF MEDICINE

Dietary salt reduction decreases CV risk

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

1 A target of 3.7 g salt/day has been recommended, but a diet high in processed foods significantly increases salt intake to as much as 10.4 g salt/day.

2 This study used the Coronary Heart Disease (CHD) Policy Model to assess the benefits of reducing dietary salt by 3 g/day on cardiovascular (CV) risk in a computer-simulated, population-wide analysis.

3 Salt reduction by 3 g/day would reduce new cases of CHD by 60 000 (to 120 000), stroke by 32 000 (to 66 000), myocardial infarction by 54 000 (to 99 000) and all-cause mortality by 44 000 (to 92 000) annually.

4 The authors suggested that these salt reductions would save 194 000 quality-adjusted life years and US$10 billion in healthcare costs annually.

Bibbins-Domingo K, Chertow GM, Coxson PG et al (2010) Projected effect of dietary salt reductions on future cardiovascular disease. *N Engl J Med* **362**: 590–9