Major journals

What role does statin potency play in diabetes development?

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Strong clinical evidence has previously demonstrated that statins reduce all-cause mortality in secondary prevention (Naci et al, 2013). However, meta-analysis of statins and total mortality in people treated for primary prevention has provided conflicting results (e.g. Brugts et al, 2009; Ray et al, 2010; Taylor et al, 2011). Thus, it is important to understand the potential adverse effects of such treatment with statins.

The incremental rise in diabetes risk particularly with high-potency statins compared with low-potency statins needs to be determined, so the study by Dormouth et al (summarised alongside) is timely. The authors evaluated large databases from six provinces of Canada (total population: 13.2 million in 2013), and international data from the UK Clinical Practice Research Datalink (population: 11.6 million) and the US MarketScan database (source population: 70 million) to investigate the difference in prevalence in new-onset diabetes between high- and low-potency statins when used for secondary prevention of cardiovascular disease.

The results of the analysis demonstrated modest evidence of a harmful association between increasing statin potency and the development of new-onset diabetes in individuals treated for secondary prevention of cardiovascular disease. Consequently, the results from this study should provide practical advice for healthcare professionals when choosing between high- and low-potency statins in the secondary prevention of cardiovascular disease for people at risk of developing diabetes. ■

> *"The results of this study provide practical advice for clinicians when choosing to prescribe varying potencies of statins."*

Brugts JJ, Yetgin T, Hoeks SE et al (2009) The benefits of statins in people without established cardiovascular disease but with cardiovascular risk factors: meta-analysis of randomised controlled trials. *BMJ* **338**: b2376

Naci H, Brugts JJ, Fleurence R et al (2013) Comparative benefits of statins in the primary and secondary prevention of major coronary events and all-cause mortality: a network meta-analysis of placebo-controlled and active-comparator trials. *Eur J Prev Cardiol* **20**: 641–57

Ray KK, Seshasai SR, Erqou S et al (2010) Statins and all-cause mortality in high-risk primary prevention: a meta-analysis of 11 randomized controlled trials involving 65,229 participants. *Arch Intern Med* **170**: 1024–31

Taylor F, Ward K, Moore THM et al (2011) Statins for the primary prevention of cardiovascular disease. *Cochrane Database Syst Rev*: CD004816

BMJ

High-potency statins and risk of T2D

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 Meta-analyses show that the use of statins is associated with the development of T2D and increases in HbA_{1c} levels.

2 These authors conducted a multicentre, observational study to determine whether high-potency statins (rosuvastatin ≥10 mg, atorvastatin ≥20 mg, or simvastatin ≥40 mg) were associated with a greater risk of developing T2D than low-potency statins (all other statin types and lower doses).

3 Of a total of 136 966 people aged ≥40 years who were newly prescribed statins following hospitalisation for a major cardiovascular event, 3629 developed new-onset diabetes.

4 There was a greater risk of incident T2D within the first 2 years with high-potency statins than with the low-potency agents (rate ratio [RR], 1.15; 95% confidence interval [CI], 1.05–1.26).

5 The risk was highest in the first 4 months of treament (RR, 1.26; 95% CI, 1.07–1.47).

6 These results support the hypothesis that it is statin potency, rather than the hydrophilic/lipophilic properties of the individual agents, that confers the risk of developing T2D.

7 Given that previous randomised controlled trials have shown no difference in all-cause mortality or serious adverse events between high- and low-potency statins, and that high-potency statins have higher discontinuation rates, the authors recommend that clinicians consider the risks and benefits of treatment before prescribing these agents.

Dormuth CR, Filion KB, Paterson JM et al (2014) Higher potency statins and the risk of new diabetes: multicentre, observational study of administrative databases. *BMJ* **348**: g3244

Lancet

Greater risk of diabetes-related stroke in women than in men

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓

1 This was a systematic review and meta-analysis to compare the relative effect of diabetes on stroke risk in women and men.

2 Data from 64 prospective cohorts, representing 775 385 individuals and a total of 12 539 fatal or non-fatal strokes, were analysed.

3 Compared with people without diabetes, the pooled relative risk (RR) of stroke was 2.28 (95% confidence interval [CI], 1.93–2.69) in women and 1.83 (95% CI, 1.60–2.08) in men.

4 Therefore, compared to men with diabetes, women with the condition had a greater risk of stroke (RR, 1.27).

5 Women were also more likely to have major cardiovascular risk factors (e.g. systolic blood pressure, cholesterol levels) at baseline than men; however, these differences did not wholly account for the differences in stroke risk.

Peters SA, Huxley RR, Woodward M et al (2014) Diabetes as a risk factor for stroke in women compared with men: a systematic review and meta-analysis of 64 cohorts, including 775,385 individuals and 12,539 strokes. *Lancet* **383**: 1973–80

PLoS One

Diabetes risk factors related to fatty liver in Chinese people

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 The Finnish Diabetes Risk Score (FINDRISC) is a questionnaire to assess a person's risk of developing T2D.

2 In this study, the relationship between FINDRISC and hepatic steatosis was evaluated in 1780 individuals from China.

3 The mean FINDRISC was 8 in men and 6 in women (out of a maximum possible score of 26), and the overall prevalence of steatosis was 18.6% (no difference between genders).

4 When male participants were stratified according to FINDRISC, the prevalence of steatosis was 2% in those with the lowest scores (0–3) and 62% in those with the highest (≥15); among women, the corresponding prevalences were 1% and 58%.

5 The authors conclude that major risk factors for T2D are predictive of hepatic steatosis in Chinese adults, as has previously been demonstrated in white populations, and they could be a useful screening tool.

Liang J, Wang Y, Li H et al (2014) Combination of diabetes risk factors and hepatic steatosis in Chinese: the Cardiometabolic Risk in Chinese (CRC) Study. *PLoS One* **9**: e90101

PLoS One

HbA_{1c} and coronary artery lesion complexity in older people with diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! Factor	✓✓✓✓

1 The SYNTAX (SYNergy between Percutaneous coronary intervention with TAXUS® and Cardiac Surgery) score is a validated grading system for coronary artery lesion complexity that can predict risk of major cardiac events.

2 These authors evaluated the association between HbA_{1c} levels and SYNTAX scores in 3805 people with diabetes aged ≥60 years.

3 HbA_{1c} and SYNTAX scores were found to be correlated (r=0.371; P<0.001), and high HbA_{1c} was predictive of higher SYNTAX scores after adjustment for other cardiovascular risk factors.

4 High HbA_{1c} values are predictive of coronary artery lesion complexity in older people with diabetes, and are therefore a simple indicator of cardiovascular prognosis.

5 The authors conclude that even this age group should strive to maintain glycaemic control.

Ma J, Wang X, Wang Y et al (2014) The relationship between glycated hemoglobin and complexity of coronary artery lesions among older patients with diabetes mellitus. *PLoS One* **9**: e91972

Lancet Diabetes Endocrinol

Insulin analogues reduce severe hypoglycaemia in T1D

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 Trials of insulin analogues have typically excluded people with T1D complicated by recurrent severe hypoglycaemia; therefore, these authors evaluated these agents in 141 people with T1D who had reported two or more episodes of severe hypoglycaemia in the previous year.

2 Participants were randomised to receive either insulin analogues (detemir and aspart) or human insulin for 1 year, after which they switched to the other drug for another year.

3 In the intention-to-treat analysis, severe hypoglycaemic episodes occurred in 136 human insulin recipients and in 105 insulin analogue recipients, corresponding to an absolute rate reduction of 0.51 episodes per patient-year and a relative rate reduction of 29% (95% confidence interval, 11–48%; P=0.01).

4 Although they acknowledge the limitations of the open-label design, the authors conclude that analogue insulins reduce the rate of severe hypoglycaemia in people with T1D and are safe for use in people who are at risk of this complication.

Pedersen-Bjergaard U, Kristensen PL, Beck-Nielsen H et al (2014) Effect of insulin analogues on risk of severe hypoglycaemia in patients with type 1 diabetes prone to recurrent severe hypoglycaemia (HypoAna trial): a prospective, randomised, open-label, blinded-endpoint crossover trial. *Lancet Diabetes Endocrinol* **2**: 553–61

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