Abstracts

Statins and diabetes

Statins are widely prescribed drugs that have known benefits in selected patients with cardiovascular risk factors or established cardiovascular disease. Recently, however, statin use has been associated with new-onset diabetes. In the JUPITER (justification for the use of statins in preventions: an intervention trial evaluating rosuvastatin) trial, rosuvastatin was associated with a 27% increase in the risk of new-onset diabetes compared with placebo. This effect was also observed with atorvastatin and simvastatin. However, the WOSCOPS (West of Scotland coronary prevention study) suggested that patients taking pravastatin had a 30% lower risk of diabetes compared with placebo.

In this study, Aleesa Carter and colleagues examined the risk of new-onset diabetes among patients treated with statins, using a population-based cohort study of all patients aged 66 or older without diabetes who started treatment with statins between August 1997 and March 2010 in Ontario, Canada. Patients with established diabetes before the start of treatment were excluded. Pravastatin was the reference drug in all analyses.

Compared with pravastatin, there was an increased risk of incident diabetes with atorvastatin (adjusted hazard ratio 1.22, 95% CI 1.15 - 1.29), rosuvastatin (1.18, 1.10 - 1.26), and simvastatin (1.10, 1.04 - 1.17). There was no significantly increased risk among people who received fluvastatin (0.95, 0.81 - 1.11) or lovastatin (0.99, 0.86 - 1.14). The absolute risk for incident diabetes was about 31 and 34 events per 1 000 person-years for atorvastatin and rosuvastatin, respectively. There was a slightly lower absolute risk with simvastatin (26 outcomes per 1 000 person-years) compared with pravastatin (23 outcomes per 1 000 person-years). The findings were consistent regardless of whether statins were used for primary or secondary prevention of cardiovascular disease. Although similar results were observed when statins were grouped by potency, the risk of incident diabetes associated with use of rosuvastatin became non-significant (adjusted hazard ratio 1.01, 0.94 -1.09) when dose was taken into account.

Compared with pravastatin, treatment with higher potency statins, especially atorvastatin and simvastatin, might be associated with an increased risk of new-onset diabetes.

People underestimate the calorie content of fast foods

International policy attempting to prevent obesity now includes asking restaurants to print calorie content on menus. From 2006 to 2010 many states and municipalities in the USA passed laws on the provision of calorie content on restaurant menus, and there is now a statute that requires any chain restaurant with more than 20 sites in the USA to print calorie content on menus. Previous research has shown that adults and children massively underestimate the calorie content of restaurant meals.

Jason Block and colleagues investigated estimation of calorie (energy) content of meals from fast-food restaurants in adults, adolescents and school-age children, using a cross-sectional study of repeated visits to fast-food restaurant chains. The setting was 89 fast-food restaurants in four cities in New England, USA: McDonald's, Burger King, Subway, Wendy's, KFC, Dunkin' Donuts.

Participants included 1 877 adults and 330 school-age children visiting restaurants at dinnertime (evening meal) in 2010 and 2011 and 1 178 adolescents visiting restaurants after school or at lunchtime in 2010 and 2011. The main outcome measure was estimated calorie content of purchased meals.

Among adults, adolescents and school-age children the mean actual calorie content of meals was 836 calories (SD 465), 756 calories (SD 455) and 733 calories (SD 359), respectively. A calorie is equivalent to 4.18 kJ. Compared with the actual figures, participants underestimated calorie content by means of 175 calories (95% CI 145 - 205), 259 calories (227 - 291), and 175 calories (108 - 242), respectively. Underestimation of calorie content increased substantially as the actual meal calorie content increased. Adults and adolescents eating at Subway estimated 20% and 25% lower calorie content than McDonald's diners (relative change 0.80, 95% CI 0.66 - 0.96; 0.75, 0.57 - 0.99).

People eating at fast-food restaurants underestimate the calorie content of meals, especially large meals. Education of consumers through calorie menu labelling and other outreach efforts might reduce the large degree of underestimation.

Pros and cons of drugs to prevent breast cancer

Pooled analyses of individual participant data from 9 randomised trials have confirmed that selective oestrogen receptor (ER) modulators help prevent breast cancer in healthy women. Together, tamoxifen, raloxifene, arzoxifene, and lasofoxifene reduced the cumulative incidence of breast cancer by an estimated 38% relative to placebo in average or high-risk women (4.2% v. 6.3%; hazard ratio 0.62, 95% CI 0.56 - 0.69; number needed to treat 42). The protective effect was confined to cancers sensitive to oestrogen, and seemed to last for at least five years after the end of treatment. The drugs did not reduce mortality from breast cancer or other diseases, although they did reduce women's risk of fractures, particularly vertebral fractures (0.66, 0.59 - 0.73).

All agents caused a significant excess of venous thromboembolic events. Tamoxifen in particular was associated with extra endometrial cancers (hazard ratio 2.18, 1.39 - 3.42). So, although these drugs work, they are not harmless, and the balance of risks and benefits will depend on a woman's age, race, predicted risk of breast cancer, and whether or not she still has a uterus, says a linked comment (http://dx.doi.org/10.1016/S0140-6736(13)60443-2). Predicting risk of breast cancer in well women is an inexact science, and women urgently need a convenient biomarker to help target preventive treatment at those with the most to gain and least to lose. Breast density is the most promising candidate so far, says the comment.

Stopping smoking is worthwhile, even if you gain weight

We all know that stopping smoking reduces the risks of cardiovascular disease (CVD), but most people gain weight after they stop. Does this weight gain weaken the cardiovascular benefits of quitting? A recent study published in the *Journal of the American Medical Association* says it does not.

Carole Clair and colleagues used a prospective community-based cohort study using data from the Framingham Offspring Study collected between 1984 and 2011 to test the hypothesis that weight gain following stopping smoking does not attenuate the benefits of

smoking cessation among adults without diabetes.

Participants were examined every 4 years and categorised as smoker, recent quitter (≤4 years), long-term quitter (>4 years) and non-smoker. Researchers measured the association between stopping smoking and 6-year CVD events and also whether 4-year change in weight after cessation of smoking modified the association between smoking cessation and CVD events. Their main outcome measure was the 6-year incidence of total CVD events, made up of coronary heart disease, cerebrovascular events, peripheral artery disease and congestive heart failure.

The mean follow-up was 25 years. During this time there were 631 CVD events among 3 251 participants. Recent quitters, both with and without diabetes, gained more weight (3.6 kg) than long-term quitters (0.9 kg). Among those participants without diabetes, the age- and sex-adjusted incidence rate of CVD was 5.9 per 100 person-examinations in smokers, 3.2 per 100 person-examinations in recent quitters, 3.1 per 100 person-examinations in long-term quitters and 2.4 per 100 person-examinations in non-smokers. These associations did not change significantly after adjusting for weight change.

This study showed that stopping smoking improved cardiovascular risk factors and that this improvement was not negated by any weight gain associated with cessation of smoking.