

## 51<sup>st</sup> Annual Meeting of the European Association for the Study of Diabetes

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### EMPA-REG OUTCOME<sup>®</sup> study: Jardiance<sup>®</sup> shows superiority for the primary CV endpoint

Boehringer Ingelheim and Eli Lilly and Company have reported their sodium–glucose cotransporter 2 inhibitor Jardiance<sup>®</sup> (empagliflozin) significantly reduces the risk of the combined endpoint of cardiovascular (CV) death, non-fatal myocardial infarction or non-fatal stroke by 14% when added to standard care in people with type 2 diabetes at high risk of CV disease and events.

There was a 38% reduction in CV death, with no significant difference in the risk of non-fatal myocardial infarction or non-fatal stroke. Additionally, treatment with Jardiance resulted in a 32% reduction in risk of all-cause mortality and 35% reduction in hospitalisation for heart failure compared to placebo.

### Different perceptions of glycaemic control

New findings from the Perceptions of Control study of 1000 people with type 2 diabetes and 300 physicians has revealed differences in the ways the two groups define diabetes control. While almost all physicians defined control in terms of measurable, clinical variables such as HbA<sub>1c</sub> and the frequency or severity of diabetes, people with the condition had a broader definition, including energy levels, mood and the amount of insulin required.

### Women versus men with diabetes: Women have 34% higher risk of heart attack

New research presented in Sweden shows that women with diabetes are at higher risk than men with diabetes of having a heart attack and other complications with increasing age.

Previous research has revealed that women with diabetes have a higher risk of cardiovascular events than men with the condition, when compared to people without diabetes. However, what remains unclear is when this risk begins or how long it lasts.

In a retrospective study comparing people with diabetes to the general population in

Tuscany, Italy, between 2005 and 2012, after adjusting for age, the diabetes related excess risk was a third higher in women than in men hospitalised for heart attack (a relative increased risk of 34% in women).

Women with diabetes also had a significantly higher excess risk than men with diabetes for hospitalisations due to heart attack for all age intervals between decade 45–54 and 75–84 years of age. The highest difference between men and women was found in age class 45–54 years (increased risk 5.83 times in women vs. 2.88 in men).

### Excessive daytime sleepiness and long naps linked to increased diabetes risk

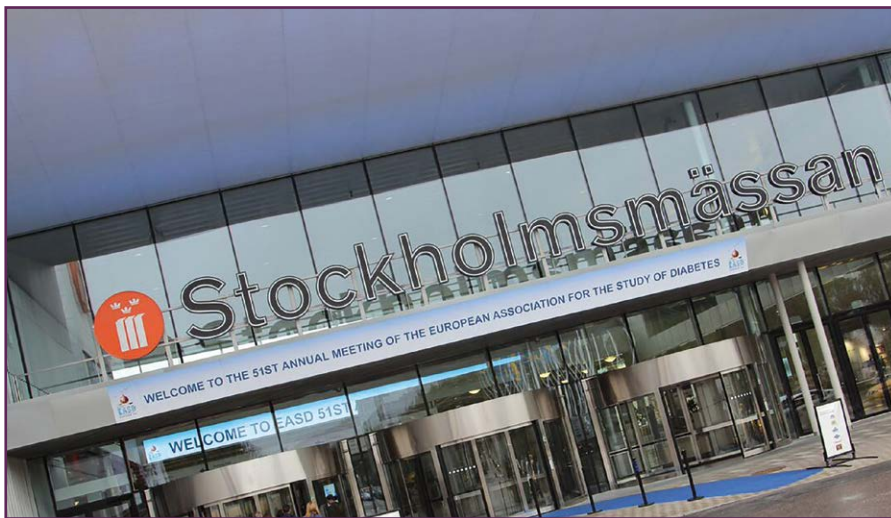
Daytime sleepiness and taking long naps during the day are both associated with an increased risk of type 2 diabetes according to new research.

Daytime naps are usually brief, but can range from a few minutes to a few hours. The frequency varies from taking an occasional nap to planned rest periods several times daily for habitual nappers. Some individuals take a nap because they are excessively sleepy during the daytime as a result of a sleep disorder.

In a new study, a meta-analysis was conducted to investigate the association between daytime sleepiness or napping and the risk of type 2 diabetes. Ten articles were deemed of good quality and included 261 365 Asian and Western people. The studies came from Sweden, Spain, Finland, and Germany (investigating daytime sleepiness) and the USA, China and Germany (investigating napping). Participants were surveyed and

excessive daytime sleepiness was found to increase the risk of diabetes by 56%, while a longer daytime nap of 60 minutes or more increased the risk by 46%. In contrast, a shorter nap (60 minutes or less per day) did not increase the risk of diabetes. The analysis showed there was no effect of napping up to 40 minutes per day, but any longer, the risk began to increase sharply.

The authors conclude: “Excessive daytime sleepiness and taking longer naps were associated with increased risk of type 2 diabetes, with a short nap not increasing this risk.” They add: “Daytime napping might be a consequence of night-time sleep disturbance such as obstructive sleep apnoea. Epidemiological studies have shown that obstructive sleep apnoea is independently linked to blockages (ischaemia) of heart arteries, stroke, fatal and non-fatal cardiovascular events, and all-cause mortality.”



## Improving glycaemic control could help prevent dementia in type 2 diabetes

A study of 350 000 people with type 2 diabetes has shown that those with poor glycaemic control have a 50% higher risk of being admitted to hospital in future for dementia compared to people who have good, or better, glycaemic control. The research, presented at the conference in Sweden by Dr Aidin Rawshani, National Diabetes Register and Institute of Medicine, Gothenburg, Sweden, and colleagues, suggests improving glycaemic control could prevent many cases of dementia.

The researchers identified all individuals with type 2 diabetes and no known hospitalisation for dementia who were registered in the Swedish National Diabetes Registry between January 2004 and December 2012. These individuals were followed up until hospital admission for dementia, death or end of follow-up at the end of 2012. In total, 11 035 individuals (3.2%) were admitted to hospital with a primary or secondary diagnosis of dementia during a mean follow-up of 4.6 years. People with an HbA<sub>1c</sub> of  $\geq 91$  mmol/mol (10.5%) or higher were 50% more likely to be diagnosed with dementia compared to those with HbA<sub>1c</sub> of  $\leq 48$  mmol/mol (6.5%). Previous stroke in these individuals was also a contributing factor to an increased risk of dementia: those who experienced a stroke were 40% more likely to develop dementia than those who had not experienced a stroke.

The authors say: "The positive association between HbA<sub>1c</sub> and risk of dementia in fairly young patients with type 2 diabetes indicates a potential for prevention of dementia with improved blood sugar control."

## Studies show exposure to pesticides is associated with increased risk of diabetes

A meta-analysis of 21 studies presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) revealed that exposure to pesticides is associated with increased risk of developing diabetes by 61%, with different types of pesticides showing varying levels of risk.

The authors from the University of Ioannina, Greece, and Imperial College London, UK, performed a systematic review and meta-analysis of observational studies that assessed the association between exposure to pesticides and diabetes. Collectively, there were 5000 people with diabetes and over 60 000 controls. The researchers found that exposure to any type of pesticide was associated with an

increased risk of any type of diabetes by 61%, and in the 12 studies analysing only type 2 diabetes, the increased risk was 64% for those exposed to pesticides. For individual pesticides, increased risk was identified with exposure to chlordane, oxychlordan, trans-nonachlor, DDT, DDE, dieldrin, heptachlor and HCB.

The authors add that the results need to be interpreted with caution given the observational nature of the data, which do not prove the causality of the observed associations. Researchers are now performing additional analyses of the data and completing a further meta-analysis of pesticide exposure in relation to the other outcomes, including neurological outcomes and several cancers.

## High-protein diets: Improve glycaemic control

High-protein diets improve glycaemic control in people with type 2 diabetes without any adverse effects on kidney function, a study has shown.

Previous studies have reported mixed findings, but this new research compared the effects of two high-protein diets with the same number of calories and nutritional content (30% protein, 40% carbohydrates, 30% fat) on metabolic functioning and liver fat.

Nearly 40 people with type 2 diabetes were randomised to receive either a high-animal protein (AP) diet or high-plant protein (PP) diet for 6 weeks.

The researchers found that in both groups, liver enzyme tests improved and both liver fat and HbA<sub>1c</sub> were reduced after intervention. Insulin sensitivity improved only in the AP-diet group, while kidney function only improved in the PP-diet group.