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• Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard Adverse events should also be reported to Janssen-Cilag Ltd on 01494 567447.

• Prescribing Information is available at this meeting.

Janssen-Cilag Ltd, 50-100 Holmers Farm Way, Buckinghamshire, HP12 4EG, UK

▼ Invokana® (canagliflozin) This medicinal product is subject to additional monitoring and it is therefore important to report any suspect adverse reactions related to this medicinal product.
Complications of Diabetic Ischemia

Adie Viljoen
MBChB, MMed, FRCPath, FCP, MBA
Lister Hospital, Stevenage
Honorary Consultant Cambridge University Hospitals NHS Trust
Case 1*

- 56 year old man
- Admitted on 24\textsuperscript{th} Dec 2013 with acute onset of chest pain

*Case study fictitious for educational purposes*
Case vignette 1

- Past medical history
  - Type 2 diabetes (diagnosed 3 years ago)
  - Hypertension
  - Current smoker 10-20/day
  - Cholecystectomy
Medication

- Simvastatin 40 mg
- Candesartan 8 mg
- Metformin 1 g bd
- Gliclazide 160 mg bd
Examination & results

- Weight 111 kg
- BMI 36
- BP 127/83 mm Hg
- \( O_2 \) saturation 93%

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<td>pT Troponin I</td>
<td>2359 ng/L [0 - 40] * high</td>
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</table>
Case 2*

- 58 year old male
- Type 2 diabetes
- Diagnosed 4 years ago

*Case study fictitious for educational purposes
Case vignette 2

- **Family history:**
  - Mother †(68 MI), had type 2 diabetes for 8 years

- **PMH:**
  - Not significant

- **Life style:**
  - Doesn’t get much exercise (lorry driver)

- **Medication:**
  - Metformin 1g b.d.
Case vignette

- **Clinical examination**
  - Overweight
    - Weight 101 kg (222 lb, 16 stone)
    - BMI = 33 kg/m²
    - Waist circumference 103 cm (40 inches)
  - BP 144/86 mm Hg
  - Rest examination NAD
Case vignette

- **Special Investigations**
  - HbA1c 7.7% (61 mmol/mol)
  - Fasting glucose 10.5 mmol/L
  - Total cholesterol 6.4 mmol/L
  - HDL-C 0.8 mmol/L
  - TG 4.6 mmol/L
  - Creatinine 88 umol/L
  - ACR 2.9 mg/mmol (<2.5)
Case vignette - Treatment

- Life style
- Medication
  - Control hyperglycaemia?
  - Lipid lowering medication?
  - Anti-hypertensive?
What is he of risk at?
When did the problems start?
How should this be managed?
What is he of risk at?
When did the problems start?
How should this be managed?

What do patients with diabetes die of?
Diabetic retinopathy

Coronary artery disease

Kidney disease

Diabetic neuropathy
Up to 80% of diabetics will die of Cardiovascular disease
Diabetes Is a “CHD Equivalent”

What is he of risk at?
When did the problems start?
How should this be managed?
What is he of risk at?
When did the problems start?
How should this be managed?
Treatment of Diabetes

- A
- B
- C
- D
- E
- F
Treatment of Diabetes – life style

- A
- B
- C
- Diet, Don’t smoke
- Exercise, Education
- F
Treating diabetes

- A: HbA1c
- B:
- C:
- D:
- E:
- F:
UKPDS: decreased risk of diabetes-related complications associated with a 1% decrease in A1C

Observational analysis from UKPDS study data

<table>
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<tr>
<th>Percentage decrease in relative risk corresponding to a 1% decrease in HbA1C</th>
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<td><strong>Any diabetes-related endpoint</strong></td>
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<td>21%</td>
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</table>

†Lower extremity amputation or fatal peripheral vascular disease

*P = 0.035; **P < 0.0001

Diabetic retinopathy

Coronary artery disease

Kidney disease

Diabetic neuropathy
A correction has been published: N Engl J Med 2007;357(1):100.

**Effect of Rosiglitazone on the Risk of Myocardial Infarction and Death from Cardiovascular Causes**

*Steven E. Nissen, M.D., and Kathy Wolski, M.P.H.*

**CONCLUSIONS**

Rosiglitazone was associated with a significant increase in the risk of myocardial infarction and with an increase in the risk of death from cardiovascular causes that had borderline significance. Our study was limited by a lack of access to original source data, which would have enabled time-to-event analysis. Despite these limitations, patients and providers should consider the potential for serious adverse cardiovascular effects of treatment with rosiglitazone for type 2 diabetes.
Steven Nissen
By Dr. Mehmet Oz

In some ways, Steve Nissen’s undergraduate years at the University of Michigan—which included crusading against the Vietnam War—were the toughest period of his life. But his extracurricular activism was just the training required for his
A Risk Worth Taking?

We’re in the grip of a diabetes epidemic. The NHS spent more than half a billion pounds on medication for it in 2005. Patients trust that these drugs are safe, but does one come with a hidden cost to health? Shelley Jofre investigates the rise and fall of Avandia, until recently one of the UK’s best-selling diabetes drugs, and asks whether the medicine’s regulator is putting the interests of the drugs industry before patients.

**DIABETES DRUG STILL AVAILABLE DESPITE SUSPENSION ADVICE**

A type 2 diabetes drug is still being prescribed in the UK two months after it was recommended for withdrawal, BBC Panorama learns.

- Read more about Panorama’s findings
- GLAXOSMITHKLINE STATEMENT TO PANORAMA
  - Read the statement
### Numerous Studies Assessing CV Outcomes in T2DM Drugs Are Either Recently Completed or Ongoing

<table>
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<th>Drug</th>
<th>Target Enrollment</th>
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<td><strong>GLP-1 Agonists</strong></td>
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<td>Lixisenatide▼</td>
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<td>DECLARE</td>
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</tbody>
</table>

*Trial ending dates are anticipated based on publicly available information.

**Not licensed in UK
Treating diabetes

- A
- B
- C Cholesterol
- D
- E
- F
Lipid profile

- The Lipid Profile
  - Total Cholesterol
  - HDL-cholesterol
  - LDL-cholesterol
  - Triglycerides

A lipoprotein profile measures the level of cholesterol in the blood.
**Stats**

- **Stats Side Effects**
- **Stats and Grapefruit**
- **Stats and Alcohol**
- **Stats and Muscle Pain**
- **Stats Memory Loss**
- **Stats Danger**
- **Stats News**
- **Stats and Memory Loss**
- **Stats Wild**
- **Stats Muscle Pain**

**Cholesterol Hoax, Danger of Statin and Low Blood Cholesterol**

The Dangers of Low Blood Cholesterol: A Myth and a Fraud?

www.shirleys-wellness-cale.com/cholesterol.htm - Cached

**The Undiscovered Danger of Statin Drugs**

8 Aug 2009 ... When you find out you have high cholesterol the doctor prescribes a drug to help cut the danger of stroke by 20 per ...

www.articlesbase.com - Health > Wellness - Cached - Similar

**Dangers of Statin Drugs - Side Effects of Statins**

Statin Danger. When statins drugs entered the market they made great promises by replacing a line of pharmaceuticals that lowered cholesterol by preventing ...

www.progressivehealth.com/statin-risks.asp - Cached - Similar

**Cholesterol lowering stats cut the danger of stroke by 20 per**

15 Apr 2009 ... Researchers revealed that statins not only lowered the overall risk of stroke, but also slowed progression of blockages in the carotid ...

www.dailymail.co.uk/.../cholesterol-lowering-stats-cut-danger-stroke-20-cent.html - Similar

**The Dangers of Statin Drugs**

Danger: Gastrointestinal disturbances. The most common side effects of statins are common to many drugs: Nausea, upset stomach, constipation, diarrhea, ...

www.squidoo.com/dangersofstatindrugs - Cached - Similar

**Are Statins Dangerous? | eHow.co.uk**
The other side of statins: They've saved countless lives - but now doctors fear for some, the side effects could be devastating

By JO WATERS
Last updated at 5:39 AM on 30th March 2010

Smallholder Paul Rhoades was counting his sheep - as he did every day - when he stopped, unable to focus or remember what he was doing. I couldn't remember which sheep I'd counted and which I hadn't, he recalls. "Counting was beyond me."

Paul, who was then aged 57, was concerned. Thad a flicker of panic that it might be a sign of Alzheimer's, he recalls.
Beyond lifestyle: Aggressive medical therapy in diabetes

- Statins
  - Fibric acid derivatives
  - Dyslipidemia
- ACE inhibitors
  - ARBs
  - β-blockers
  - CCBs
  - Diuretics
  - Hypertension
- Metformin
  - TZDs
  - Sulfonylureas
  - Nonsulfonylureas
  - Secretagogues
  - Insulin
  - Hyperglycemia
  - Insulin resistance
- Platelet activation and aggregation

Atherosclerosis

Adapted from Beckman JA et al. JAMA. 2002;287:2570-81.
Additional Cases
Case 3*

- 66 year old female
- Type 2 diabetes
  - No microvascular complications
  - Diagnosed 4 years ago
    - HbA1c of 7.8% (62 mmol/mol)
    - Total cholesterol = 4.8
    - BP 140/80
- Questions?
  - Glycaemia, cholesterol

*Case study fictitious for educational purposes
Case 4

- 88 year old man
- Recently diagnosed diabetes
- HbA1c 8.5% (69 mmol/mol)
- Lives care home
- Co-morbidities
  - Vascular dementia
  - Congestive heart failure NYHA 2-3
  - Renal impairment eGFR 18
  - Previous MI and CVA

*Case study fictitious for educational purposes