Diabetes journals

Glibenclamide versus gliclazide: Cardiovascular events

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There continues to be debate regarding the potential adverse cardiovascular events during treatment with sulphonylureas. Their mode of action, particularly that of the older agents, is said to interfere with ischaemic preconditioning of the myocardium, and consequently possibly impart an adverse cardiac event profile.

The population study by Juurlink et al (2012; summarised alongside) is an interesting study in patients aged 66 years or older who were hospitalised for acute myocardial infarction or who underwent percutaneous coronary intervention whilst receiving either glibenclamide or gliclazide treatment. Propensity scoring was utilised to ensure similarity between the two treatment groups. The researchers found no difference in the risk of the composite outcome of patients receiving glibenclamide or gliclazide. The rest of the study provides evidence that, amongst elderly people, there is no increase in CV events with glibenclamide use compared with gliclazide, raising the issue of the effect of sulphonylureas on ischaemic preconditioning.

> ***"Amongst elderly people, there is no increase in CV events with glibenclamide use compared with gliclazide, raising the issue of the effect of sulphonylureas on ischaemic preconditioning."***

DIABETIC MEDICINE

The Diabetes Prevention Program: 10-year CV outcomes

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

1 The authors present 10-year follow-up cardiovascular (CV) outcome data from the three treatment groups of the Diabetes Prevention Program (DPP; metformin, intensive lifestyle and placebo), all of whom continued to receive care outside of the research setting, and enrol in this DPP Outcomes Study (DPPOS) following to DPP.

2 During the DPPOS, participants were offered quarterly lifestyle sessions – the intensive lifestyle group received two extra booster lifestyle group classes. The metformin group continued their treatment.

3 Individuals underwent follow-up annual and semi-annual outcome assessments. Reported outcomes included BP, lipoprotein concentrations and the proportion of people meeting diagnostic and treatment guidelines.

4 After 10 years of follow-up, compared with the placebo group, people treated with metformin or lifestyle intervention had lower waist circumference and BMI values.

5 In all groups, systolic and diastolic BP were reduced (2–3 mmHg and 5–6 mmHg, respectively), as was low-density lipoprotein cholesterol (0.47–0.54 mmol/L), whilst there was a rise in high-density lipoprotein cholesterol (0.13–0.16 mmol/L). There were no between-group differences.

6 Medication use, lipid levels and BP were lower in the lifestyle group compared with the metformin and placebo groups ($P<0.012$ and $P<0.09$, respectively).

7 The authors concluded that long-term effects on CV risk factors were seen in all treatment groups but that in the lifestyle group they were achieved with lower medication use.

Orchard TJ, Temprosa M, Barrett-Connor E et al (2012) Long-term effects of Diabetes Prevention Program interventions on cardiovascular risl factors: a report from the DPP Outcomes Study. *Diabet Med* 19 Jul [Epub ahead of print]

DIABETIC MEDICINE

CV risk profiles of sulphonylureas

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

1 In this retrospective population study, the authors compared the cardiovascular (CV) risk profiles of glibenclamide and gliclazide over 2 years in people aged ≥66 years who were hospitalised for active coronary artery disease.

2 A total of 1690 people treated with glibenclamide at the time of hospitalisation for acute myocardial infarction, percutaneous coronary intervention or both were propensity-score matched with 984 people receiving gliclazide.

3 People were followed from study entry until death from all causes or to the end of the study period. The primary outcome was a composite of death or hospitilisation for acute myocardial infarction or heart failure.

4 Collectively, the cohort were followed for 266 person-years of treatment. Death or hospitilisation for acute myocardial infarction or heart failure occured in 37.7% ($n=637$) and 33.2% ($n=327$) of people receiving glibenclamide and gliclazide, respectively.

5 The risk of the composite outcome did not differ between people taking either glibenclamide or gliclazide (adjusted hazard ratio [HR], 1.01; 95% confidence interval [CI], 0.86–1.18), nor did the risk of myocardial infarction (adjusted HR, 1.08; 95% CI, 0.85–1.38), heart failure (adjusted HR, 0.85; 95% CI, 0.65–1.13) or death (adjusted HR, 1.04; 95% CI, 0.82–1.33).

6 The authors concluded that among older people hospitalised for acute coronary artery disease, glibenclamide is not associated with an increased risk of future CV events when compared with gliclazide.

Juurlink DN, Gomes T, Shah BR et al (2012) Adverse cardiovascular events during treatment with glyburide (glibenclamide) or gliclazide in a high-risk population. *Diabet Med* 22 Aug [Epub ahead of print]

DIABETES CARE

Glucose tolerance diagnosis: OGTT versus HbA_{1c}

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

1 The authors set out to assess insulin secretion, insulin action and cardiovascular (CV) risk profile based on oral glucose tolerance tests (OGTTs) and HbA_{1c} in people at high risk of developing T2D, across nine centres in Italy (n=844).

2 All OGTTs and HbA_{1c} measurements were performed after overnight fasting. HbA_{1c} measurements were taken first, after which a 75 mg glucose load was administered over 5 minutes and blood samples were collected at 15, 30, 60, 90 and 120 minutes for measurements of C-peptide and plasma glucose. Beta-cell function was estimated using 2-hour OGTT C-peptide and plasma-glucose response data.

3 Results from OGTTs showed that 42% of people had prediabetes and 15% had T2D, compared with corresponding HbA_{1c}-derived values of 38% and 11%. Respective concordance was 54% and 44%.

4 Compared with people with normal glucose tolerance, those who fitted both diagnostic criteria for prediabetes had greater insulin resistance (IR) and insulin secretion impairment, and a worse CV risk profile. Irrespective of diagnostic criteria, people with T2D had a higher degree of IR and beta-cell dysfunction.

5 The authors concluded that a smaller proportion of people with prediabetes, and an even smaller proportion with T2D, were identified using HbA_{1c} compared with OGTT. People with prediabetes identified by both methods did not differ in terms of CV risk profile, IR or insulin secretion.

Bianchi C, Miccoli R, Bonadotnna RC et al (2012) Pathogenetic mechanisms and cardiovascular risk: differences between HbA_{1c} and oral glucose tolerance test for the diagnosis of glucose tolerance. *Diabetes Care* 21 Aug [Epub ahead of print]

DIABETIC MEDICINE

ADDITION-Cambridge trial: 1-year results

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

1 The authors investigated the effect of changes in self-reported physical activity on cardiovascular (CV) risk factors and modelled CV risk at 1 year in people with newly diagnosed T2D identified in the ADDITION-Cambridge trial.

2 Over 12 months, a total of 736 people completed the European Prospective Investigation into Cancer (EPIC)-Norfolk questionnaire to measure domain-specific physical activity. The relationship between change in physical activity and 1-year CV risk factors was described using multiple linear regression models.

3 Over 12 months, self-reported physical activity levels did not change. CV risk factors changed only a small amount, even with relatively large changes in physical activity. Increased recreational physical activity was associated with reduction in HbA_{1c} in men (P=0.021) and a reduction in systolic BP in women (P=0.045).

Barakat A, Williams KM, Prevost AT et al (2012) Changes in physical activity and modelled cardiovascular risk following diagnosis of diabetes: 1-year results from the ADDITION-Cambridge trial cohort. *Diabet Med* 22 Aug [Epub ahead of print]

DIABETES CARE

BP control does not influence health-related QoL in T2D

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

1 The authors compared the effect of standard and intensive blood pressure (BP) control (systolic BP <120 mmHg and 130–139 mmHg, respectively) on health-related quality of life (HRQoL) in a subsample of ACCORD (Action to Control Cardiovascular Risk in Diabetes) trial participants with T2D (n=1028) over 4 years. They hypothesised that intensive BP control would improve HRQoL more than standard BP control.

2 HRQoL measurements were self-administered at baseline, 12, 36 and 48 months. The impact of assigned BP therapy on HRQoL was assessed using multiple linear regression models.

3 Five of six HRQoL measurements showed no improvement over 4 years with either BP treatment. Intensive BP control did not, as predicted, impact depression or patient-reported HRQoL.

O'Connor PJ, Narayan KM, Anderson R et al (2012) Eff ect of intensive versus standard blood pressure control on depression and health-related quality of life in type 2 diabetes: the ACCORD trial. *Diabetes Care* **35**: 1479–81

DIABETES CARE

Statin therapy and insulin sensitivity during CABG surgery

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

1 In this prospective non-randomised trial, the authors investigated the relationship between preoperative statin therapy and insulin sensitivity in people without diabetes who had dyslipidaemia and were undergoing cardiac artery bypass grafting (CABG; n=120).

2 People were allocated to the statin therapy group if they had been taking lipophillic statins for ≥3 months prior to surgery (n=60), whilst others entered the control group (n=60). Insulin sensitivity was assessed during surgery. Post-surgical mean and SD blood glucose levels were calculated within 24 hours.

3 Insulin sensitivity declined significantly in both groups (P<0.001 for both). The change in insulin sensitivity was greatest in people taking statins. Statin use was independently associated with intraoperative insulin sensitivity (P=0.03)

Sato H, Carvalho G, Sato T et al (2012) Statin intake is associated with decreased insulin sensitivity during cardiac surgery. *Diabetes Care* **35**: 2095–9

"A smaller proportion of people with prediabetes, and an even smaller proportion with T2D, were identified using HbA_{1c} compared with oral glucose tolerance testing."