

## Diabetes journals



### Changes in albuminuria: What's the cardiovascular impact?

**Jiten Vora**  
Professor of Diabetes, Royal Liverpool University Hospital, Liverpool

Considerable data support the notion that urinary albumin excretion rate is a strong predictor of cardiovascular disease. However, uncertainty exists as to whether an improvement from microalbuminuria to normoalbuminuria, or a deterioration from normoalbuminuria to microalbuminuria over time in people with differing changes in glucose, blood pressure and lipids affects their cardiovascular risk.

This interpretation of data from the ONTARGET and TRANSCEND investigators summarised alongside, therefore, is particularly helpful in describing a strong association between albuminuria status and all-cause and cardiovascular mortality, as

well as renal end-points. Most importantly it demonstrates that irrespective of blood pressure control or glucose status, people with type 2 diabetes showing an improvement from microalbuminuria to normoalbuminuria over 2 years have a lower risk of cardiovascular and renal outcomes than those showing a deterioration from normal albuminuria to microalbuminuria excretion rate.

**“This interpretation of data is particularly helpful in describing a strong association between albuminuria status and all-cause and cardiovascular mortality or both as well as renal endpoints.”**

Consequently, and practically, this study offers further support for monitoring of urinary albumin excretion status when addressing an individual's cardiovascular risk, and the potential benefits of reducing the levels of urinary albumin excretion rate. ■

### Diabetologia

#### Changes in urinary albumin: Changes in CV risk?

Readability ////  
Applicability to practice ////  
WOW! Factor ////

1 There is debate whether changes in urinary albuminuria status of people with diabetes and high cardiovascular (CV) risk is associated with changes in CV risk and mortality, when accompanied with changes in glucose and blood pressure (BP). This large analysis of data from two large prospective studies aimed to investigate this issue further.

2 The study population comprised 22 984 high CV-risk people with vascular disease, and data over a follow-up period of 56 months on mortality, cardiovascular and renal outcomes were analysed.

3 Participating individuals were stratified by changes in albuminuria, glucose status and mean systolic BP over 2 years.

4 After analysis, all-cause and CV mortality, and combined CV and renal endpoints were all found to be significantly associated with albuminuria status (all  $P < 0.0001$ ).

5 Changes in systolic BP had no effect on mortality, but glucose status was significantly associated with all outcomes.

6 Individuals showing an improvement in albuminuria status after 2 years were at a lower risk of all outcome measures than individuals showing deterioration from normoalbuminuria to microalbuminuria (hazard ratio for all-cause mortality 0.65 [95% confidence interval 0.52–0.83];  $P = 0.0004$ ).

7 Albuminuria status is a good predictor of mortality and CV and renal outcomes in people with high CV risk.

Schmieder RE, Schutte R, Schumacher H et al (2014) Mortality and morbidity in relation to changes in albuminuria, glucose status and systolic blood pressure: an analysis of the ONTARGET and TRANSCEND studies. *Diabetologia* 57: 2019–29

## Diabetes Care

### Does restoring normal glucose regulation lead to reduced CVD risk?

Readability ////  
 Applicability to practice ////  
 WOW! Factor ////

- The authors sought to determine whether restored normal glucose regulation (NGR) in those with prediabetes is associated with a long-term decrease in cardiovascular disease (CVD) risk. It is known that restoring to NGR significantly reduces the risk of future T2D.
- An estimate of the global 10-year CVD risk and individual CVD risk factors were calculated annually for the Diabetes Prevention Program Outcomes Study (DPPOS) years 1–10 for people who returned to NGR at least once during the DPP. The risk was compared to the CVD risk of those who remained with prediabetes and those who developed T2D during the study.
- Of the 2775 participants in DPPOS, 1509 (54%) had achieved NGR at least once during the DPP, whereas 496 (18%) remained with prediabetes and diabetes developed in 770 (28%).
- The mean estimated CVD risk during the follow-up was 14.4% (95% confidence interval [CI], 13.9–15.0%) in people with diabetes, 16.2% (95% CI, 15.6–16.8%) in the prediabetes group, and 15.5% (95% CI, 15.1–16.0%) in those who reached NGR. There was a statistically significant difference in CVD risk in people who reached NGR compared to those with prediabetes and who developed diabetes.
- The findings from this study highlight the potential CVD risk associated with prediabetes, and that intensive, aggressive treatment of CVD risk factors and management of lipid and glycaemic levels can reduce this risk.

Perreault L, Temprosa M, Mather KJ et al (2014) Regression from prediabetes to normal glucose regulation is associated with reduction in cardiovascular risk. *Diabetes Care* **37**: 2622–31

## Diabetes Care

### T1D: Severe hypoglycaemia and mortality after CV events

Readability ////  
 Applicability to practice ////  
 WOW! Factor ////

- The aim of the study was to examine whether previous severe hypoglycemic events were associated with an increased risk of all-cause mortality after major cardiovascular (CV) events (i.e. myocardial infarction [MI] or stroke) in people with T1D.
- Using data from the Swedish National Diabetes Register, 1839 people with T1D were selected if they had experienced a major CV event in the study period (2002–2010).
- All-cause mortality risk was calculated for a month after the severe hypoglycaemic event, and at the age of 60 years, 5-year cumulative mortality risk was estimated.
- Of the total number of participants, 403 had previously experienced severe hypoglycaemic events and 703 died during the study period.
- A prior hypoglycaemic event was associated with a significant increase in mortality after a CV event. Hazard ratios were estimated at 1.79 (95% confidence interval [CI], 1.37–2.35) within the first month and 1.25 (95% CI, 1.02–1.53) after 1 month.
- Patients with prior hypoglycaemia had an estimated 5-year cumulative mortality risk of 52.4% (95% CI, 45.3–59.5) and 39.8% (95% CI, 33.4–46.3) for MI and stroke, respectively.
- The authors conclude that people with T1D with prior severe hypoglycaemic events had increased risk of mortality after a CV event.

Lung TW, Petrie D, Herman WH et al (2014) Severe hypoglycemia and mortality after cardiovascular events for type 1 diabetic patients in Sweden. *Diabetes Care* **37**: 2974–81

## Diabetic Medicine

### General practice variations: Lipid-lowering medication

Readability ////  
 Applicability to practice ////  
 WOW! Factor ////

- The variation in the prescription of lipid-lowering treatment with people with T2D among general practices was investigated to see if there were any associations with practice and participant characteristics and cardiovascular events and all-cause mortality.
- The observational study cohort was 1533 people with screen-detected T2D aged 40–69 years from the ADDITION-Denmark study.
- A total of 174 general practices were randomised to receive routine diabetes care according to national guidelines ( $n=623$ ) or intensive multifactorial target-driven management ( $n=910$ ).
- The association between the proportion of individuals in each practice who redeemed prescriptions for lipid-lowering medicines in the 2 years following diabetes diagnosis and a composite cardiovascular disease (CVD) outcome, adjusting for multiple factors was evaluated.
- The proportion of individuals treated with lipid-lowering medicines varied widely across practices.
- For the whole-trial cohort, the risk of CVD was significantly higher in practices in the lowest quartile for prescribing lipid-lowering medication compared with the highest (adjusted odds ratio [OR] 3.4; 95% confidence interval, 1.6–7.3). Similar trends were also found for all-cause mortality.
- The results show the benefit of intensive use of lipid-lowering treatments to lower CVD risk among people with screen-detected T2D.

Simmons RK, Carlsen AH, Griffin SJ et al (2014) Variation in prescribing of lipid-lowering medication in primary care is associated with incidence of cardiovascular disease and all-cause mortality in people with screen-detected diabetes. *Diabet Med* **31**: 1577–85

“Albuminuria status is a good predictor of mortality and cardiovascular and renal outcomes in people with high cardiovascular risk.”