# Diabetes journals

## *Be haunted not by the "Ghost of Christmas Future": Hunt for albuminuria and treating it effectively*

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In the short novel *A Christmas Carol,* Charles Dickens (1843) implores us to examine our current attitudes and to better prepare for the future. I will not address your personal universe and its concerns, but I will ask you to consider urine albumin screening in your patients with diabetes!

Doggen et al (summarised alongside) studied 7640 individuals with diabetes (33% of which with type 1 diabetes) and defined albuminuria as any microalbuminuria or proteinuria, and reduced estimated glomerular filtration rate (eGFR) as <60 mL/min/1.73 m$^2$. The authors found that albuminuria was associated with poor glycaemic control, poor blood pressure control and dyslipidaemia. Macrovascular complications and retinopathy were also significantly more prevalent in these individuals, irrespective of whether the eGFR was reduced or not. In type 2 diabetes, reduced eGFR was associated with a higher prevalence of microvascular and macrovascular complications. Individuals with albuminuria and a reduced eGFR had a dramatic increase in the prevalence of macrovascular complications compared to individuals with no albuminuria and normal eGFR (for type 1 diabetes 16.3% versus 5.6%, respectively; and for type 2 diabetes 45.5% versus 26.6%, respectively).

Despite this knowledge, which is widely known, the *National Diabetes Audit 2011–2012* found marked deficiencies in urine albumin screening across Clinical Commissioning Groups (CCGs)/ Local Health Boards (LHBs) in England and Wales. The auditors found that the median of patients with type 1 and type 2 diabetes having a complete care process for urine albumin screening was 76% (the worst and best CCGs/LHBs completed care processes for urine albumin screening in 43% and 87% of their patients, respectively). There was also a disparity in the screening of individuals with type 1 diabetes and type 2 diabetes; while 77.9% of individuals with type 2 diabetes were screened, only 59.2% of individuals with type 1 diabetes received screening (National Diabetes Audit, 2013). This is the "Ghost of Christmas Present", but we can do something about it. There is no "Ghost of Christmas Past" to idealise.

We have the tools to change "*the shadows of the things that […] may be dispelled*" by implementing an aggressive management of hypertension, especially using evidence-based treatments such as irebesartan (Lewis et al, 2001) and particularly losartan (Brenner et al, 2001; both angiotensin II receptor blockers [ARBs]). For irbesartan, there is evidence that supports its role in protecting against the progression of microalbuminuria and proteinuria to worsening diabetic nephropathy. And for losartan, there is evidence to show that it can reduce the progression of proteinuria to end-stage renal failure by 28% and reduce mortality by 20% (Brenner et al, 2001).

We could start next year with the aim to check the urine albumin of the vast majority of our patients with diabetes. By aggressive risk factor management, particularly of hypertension, and the use of angiotensin-converting enzyme inhibitors or ARBs (the latter have better randomised controlled trial evidence), we can give our patients with diabetes a present. Potentially, longer lives with more Christmases, and without renal disease and other complications. After all, Charles Dickens does conclude, "*No space of regret can make amends for one life's opportunity misused.*"

Brenner BM, Cooper ME, de Zeeuw D et al (2001) Effects of losartan on renal and cardiovascular outcomes in patients with type 2 diabetes and nephropathy. *N Engl J Med* **345**: 861–9

Health and Social Care Information Centre Board (2013) *National Diabetes Audit 2011–2012: Report 1*. Health and Social Care Information Centre, Leeds

Lewis EJ, Hunsicker LG, Clarke WR et al (2001) Renoprotective effect of the angiotensin-receptor antagonist irbesartan in patients with nephropathy due to type 2 diabetes. *N Engl J Med* **345**: 851–60

**JOURNAL OF DIABETES AND ITS COMPLICATIONS**

## CVD risk factors and nephropathy complications in those with diabetes

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

1 The authors aimed to establish the association between albuminuria and cardiovascular (CV) risk factors, and the presence of other complications, in the presence and absence of reduced estimated glomerular filtration rate (eGFR; defined as <60 mL/min/1.73 m$^2$).

2 The authors also hoped to investigate whether the association differed between individuals with T1D and T2D.

3 In total, 7640 insulin-treated individuals with diabetes (33% with T1D) were involved in this cross-sectional study.

4 Data from a nationwide quality improvement initiative in 113 hospital-based specialist diabetes centres in Belgium in 2009 were used. All participants were treated with at least two insulin injections per day.

5 From the data, albuminuria, reduced eGFR, or a combination, were all significantly more prevalent in individuals with T2D than with T1D.

6 Independent of diabetes type, albuminuria was associated with an increased CV risk, longer diabetes duration, male sex, smoking, lower eGFR and more frequent antihypertensive treatment.

7 Albuminuria was independently associated with CV risk factors (e.g. poor control of blood pressure, blood lipids and $HbA_{1c}$) and diabetic complications in individuals with T1D and T2D.

Doggen K, Nobels F, Scheen AJ et al (2013) Cardiovascular risk factors and complications associated with albuminuria and impaired renal function in insulin-treated diabetes. *J Diabetes Complications* **27**: 370–5

DIABETES CARE

## Long-term survivors and non-survivors of T2D compared

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

1 This retrospective study based in southern India used records from a 10-year period to compare the clinical profile of long-term survivors (i.e. T2D for >40 years) and non-survivors (i.e. died before 40 years duration) with diabetes.

2 Survivors ($n$=238) and non-survivors ($n$=307) were matched for age of diabetes onset and gender, and the prevalence of microvascular and macrovascular complications were compared.

3 The mean age of survivors was 76.7 ± 6.9 years, and the mean age of death for non-survivors was 56.3 ± 11.7 years ($P$<0.001). The mean duration of diabetes of survivors was 43.7 ± 3.9 years and of non-survivors, it was 22.4 ± 11.0 years ($P$<0.001 for the difference).

4 Non-survivors had higher systolic and diastolic blood pressure, plasma glucose, $HbA_{1c}$ levels and total lipid profiles ($P$<0.001 for all compared to survivors). Myocardial infarction and renal failure were the most common causes of death.

5 There were more complications for the survivors (neuropathy being most common) due to their older age and longer duration of diabetes.

6 Survivors from this study were leaner than the average individual with T2D, and had a life expectancy longer than the national average. More statins were also used by the survivors group than the non-survivors.

7 Further studies should investigate the factors responsible for the long-term survival in the group of survivors.

Mohan V, Shanthi Rani CS, Amutha A et al (2013) Clinical profile of long-term survivors and nonsurvivors with type 2 diabetes. *Diabetes Care* **36**: 2190–7

DIABETES CARE

## Feasibility of a multifactorial intervention

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

1 As part of the 2-year interim analysis of the MIND.IT (the Multiple INtervention in type 2 Diabetes. ITaly) study (a cluster randomised trial), this article investigated the feasibility and effectiveness of a multifactorial intervention for reducing the cardiovascular disease (CVD) risk in a clinic-based setting.

2 Four clinics applied the intervention care (IC; e.g. promoting diet and exercise, and freely prescribing medication), and five continued with usual care (UC). In total, 1461 individuals with T2D and no cardiovascular complications were recruited. Patients of the IC clinics with a high CVD risk were enrolled in the study.

3 The main outcome was a target change from baseline in major CVD risk factors (LDL cholesterol and blood pressure [BP]) and $HbA_{1c}$.

4 At the 2-year follow-up, the IC participants had significantly lower BMI, $HbA_{1c}$, LDL cholesterol, triglyceride levels and higher HDL cholesterol levels than the UC group.

5 More people in the IC group achieved the treatment goals than the UC group; however, in the IC arm, only 55% of those achieved the $HbA_{1c}$ goal, 43% achieved the LDL cholesterol goal and 23% reached the BP goal, which was "suboptimal".

6 The intervention protocol is feasible and effective in clinical practice for significant and durable improvements in $HbA_{1c}$ and CVD risk factors.

Vaccaro O, Franzini L, Miccoli R et al (2013) Feasibility and effectiveness in clinical practice of a multifactorial intervention for the reduction of cardiovascular risk in patients with type 2 diabetes: the 2-year interim analysis of the MIND. IT study. *Diabetes Care* **36**: 2566–72

DIABETES CARE

## Early-adult CVD risk factors among those with or without diabetes

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

1 This study based on data from the Framingham Heart Study Offspring Cohort examined the cardiovascular disease (CVD) risk factors in people with diabetes in the 30-year period leading up to the diabetes diagnosis.

2 CVD risk factors (e.g. hypertension, high LDL cholesterol, low HDL cholesterol, high triglyceride levels and obesity [measured as BMI]) were recorded at diabetes diagnosis and at time points 10, 20 and 30 years prior.

3 A total of 525 participants who went on to develop diabetes were matched with 1049 controls who did not (mean age of 60 years; 40% women). Follow-ups in the form of medical examinations occurred every 4 years.

4 Those that went on to develop diabetes had significantly higher levels of hypertension, LDL cholesterol, triglycerides and obesity and lower levels of HDL cholesterol at time points 30 years before diagnosis.

5 The authors also found that the overall prevalence of treatment for both elevated blood pressure and lipids was low at the time of diabetes diagnosis, suggesting clinical inertia.

6 The results from this report suggest the importance of a life course approach to avoid developing diabetes. CVD risk doesn't begin with diagnosis of diabetes; the increased CVD risk factor burden exists well before diabetes diagnosis.

Preis SR, Pencina MJ, Mann DM et al (2013) Early-adulthood cardiovascular disease risk factor profiles among individuals with and without diabetes in the Framingham Heart Study. *Diabetes Care* **36**: 1590–6

***"Independent of diabetes type, albuminuria was associated with an increased cardiovascular risk, longer diabetes duration, male sex, smoking, lower estimated glomerular filtration rate and more frequent antihypertensive treatment."***