



Association of British Clinical Diabetologists



## The 1<sup>st</sup> Joint Meeting of the Association of British Clinical Diabetologists and the Renal Association

### Diabetes and Kidney Disease: Advances and Controversies

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International Convention Centre, Birmingham

## POSTERS

### 1 Diagnostic discrepancies in diabetic nephropathy in general practice.

*Dr Christopher Hill (1), Dr Glynis Magee (2), Mr Gerard Savage (2), Dr Steve Hunter (2), Professor Frank Key (2), Dr Damian Fogarty (2).*

*(1) Renal Unit, Daisy Hill Hospital, Newry; (2) Centre for Public Health, Royal Victoria Hospital, Belfast.*

#### *Background*

In 2004 a pay for performance system, the Quality and Outcomes Framework (QOF), was introduced to improve patient care in UK General Practice. Screening for diabetic nephropathy (DN), as defined by abnormal albumin:creatinine ratio (ACR), is one of many specific clinical indicators monitored. This study aims to investigate the correlation of reported QOF DN prevalence with laboratory results in Northern Ireland.

#### *Method*

QOF data (at practice level) was obtained from the Payment Calculation and Analysis System to establish reported DN prevalence. A laboratory result database was compiled of patients with diabetes (defined as HbA1c  $\geq 6.1\%$ ) in Northern Ireland in the years 2004-2007. ACRs were matched to patients in this diabetes cohort and these results matched to the patient's general practice. Correlations between QOF and laboratory results were calculated.

#### *Results*

QOF and laboratory prevalence of diabetes correlate strongly ( $r^2=0.79$  in 2004-5 rising to  $r^2=0.93$  in 2006-7). Conversely QOF prevalence of DN is consistently lower than laboratory results. There is a small but significant correlation between QOF and laboratory results in each year studied – 2004-5 ( $r^2=0.2$ ,  $p<0.01$ ), 2005-6 ( $r^2=0.21$ ,  $p<0.01$ ) and 2006-7 ( $r^2=0.19$ ,  $p<0.01$ ). Approximately 2000 extra DN cases per year were discovered using the laboratory dataset.

#### *Conclusion*

Although DN prevalence rates correlate weakly between QOF and laboratory results the laboratory statistics are consistently much greater than reported QOF rates. Potentially this suggests a lack of uniformity in screening practices or a lack of understanding amongst some practices in interpretation of ACR results.

## 2 Foot disease is associated with high mortality in the diabetic dialysis patient.

*Agbor Ndip (1), Karen Breislin (1), Anand Vardhan (2), Andrew Boulton (1)*

*(1) Manchester Diabetes Centre, Manchester Royal Infirmary; (2) Dept of Renal Medicine, Manchester Royal Infirmary.*

Diabetes is now the single commonest cause of end-stage renal disease (ESRD), requiring renal replacement therapy worldwide. In the US, diabetic patients account for 44% and in the UK about 24% of all patients on dialysis. Foot diseases in diabetes can result in significant morbidity and mortality further compounding the poor survival of the dialysis population.

A prospective observational study involving diabetic patients with ESRD on both haemo and peritoneal dialysis was undertaken to examine the impact of foot ulcers and amputations on mortality. We studied 192 prevalent diabetic dialysis patients at our centre. These included 17 (8.9%) African-Caribbeans, 38 (19.8%) Indo-Asians and 137 (71.4%) White Europeans aged (mean  $\pm$  SD)  $59 \pm 14$  years, with a male/female ratio of 121/71. Comprehensive foot assessment was performed at baseline including evaluating for neuropathy, peripheral arterial disease, foot deformities, and foot ulcers/amputation. Patients were followed up for a two-year period. Overall mortality at the end of two years was high (102/192, 53.1%). Patients who had a foot ulcer at baseline (35/59, 59.3%) had a higher mortality after 2 years of follow-up, compared with patients without (55/133, 41.4%,  $p = 0.028$ ). Similarly, patients who had had an amputation at baseline had higher mortality at 2 years (26/35, 74.3%) compared to patients without amputation (64/157, 40.8%,  $p < 0.0001$ ).

These data highlight the excess mortality in dialysis-treated diabetic patients resulting from foot ulcers and amputations, therefore underpinning the importance of integrating foot care and amputation prevention within the dialysis population.

## 3 Diabetic kidney disease - national and international trends.

*Dr Christopher Hill (1), Dr Damian Fogarty (2)*

*(1) Renal Unit, Daisy Hill Hospital, Newry; (2) Regional Nephrology Unit, Belfast City Hospital*

### Background

Diabetic kidney disease (DKD) is responsible for half of all patients commencing renal replacement therapy (RRT) in some countries. Historically there has been some nihilism regarding DKD arising from preconceptions that DKD patients have a poor prognosis. Patients with DKD are more likely to have multiple co-morbidities. However this review aims to establish trends in national and international incidence, prevalence and survival of DKD.

### Method

A review was undertaken of the collected reports of the UKRR to analyse incidence, prevalence and survival data of diabetes patients with ESRD. The results were compared with other international registries (USRDS, ERA-EDTA registry and ANZDATA).

### Results

DKD is now the most common cause of ESRD in the UK with a crude incidence rate of 27.6 per million population. The proportion of new ESRD patients with DKD has almost doubled in the last decade. Prevalence rates in the UK have also increased significantly over the last decade (from 47 pmp in 1997 to 77pmp in 2009). Prevalent patient survival on dialysis has also improved. ESRD due to diabetes is much more common in the USA however rates there appear to have stabilised.

## Conclusion

End-stage renal disease due to diabetes is increasing in the UK whilst rates have stabilised in other countries. Rates are still significantly less than in the USA perhaps indicating fundamental differences either in populations or in early therapeutic strategies. Patients with diabetes mellitus on RRT are surviving longer than in any previous era.

## 4 **Utility of a one-stop joint clinic for patients with diabetes on peritoneal dialysis - pilot evaluation of achievement of diabetes process and outcome measures.**

*Anna Mathew, J Grosvenor, S Hussein, K Sandhu, V Baskar.*

*Wolverhampton Diabetes & Renal Units, New Cross Hospital, Wolverhampton.*

### Introduction & Aims

Patients with diabetes on peritoneal dialysis represent a challenging group with complex needs and at risk of unstructured diabetes care. This audit evaluates the utility of a one-stop multi-disciplinary renal diabetes clinic for patients receiving continuous ambulatory peritoneal dialysis (CAPD).

### Methods

The CAPD Diabetes clinic was set up in December 2009 as an alternative to individual follow up clinics in renal and diabetes services. In addition to clinicians and specialist nurses, dieticians and chiropodists were also available. The renal registry was utilized to identify patients. Formal patient satisfaction survey is being undertaken on this cohort.

### Results

Of 25 patients currently receiving CAPD, 18 patients had been seen at 2 visits per patient (range 1-6). Demographics - age 58years (41-83), 2/3<sup>rd</sup> males, 1/3<sup>rd</sup> Type 1 Diabetes. Insulin was the glycaemic treatment in 92%. Complications - retinopathy 89%; foot risk 25% low, 50% intermediate, 25% high or active foot problems; 39% manifest heart disease. Renal transplant status - 20% unsuitable, 28% temporarily suspended, 28% being screened for suitability and 28% on active list. Following consultation, 56% had a change in glycaemic treatment (6% withdrawal, 11% regime change and 39% dose change). HbA1c at first review was 8.3% (6.4%-14.5%) and amongst those with multiple visits, the latest HbA1c was unchanged. Proportion with active hypoglycaemic problems dropped (50% to 5%) and that accessing appropriate foot-care increased (50% to 100%).

### Conclusion

One-stop review of patients with diabetes receiving peritoneal dialysis helped attain improvement of diabetic processes and outcome measures.

## 5 **Random albumin / creatinine ratio as an alternative to 24 hour urine collection in pregnant ladies with pre-gestational diabetes mellitus.**

*C M Iqbal, D Sharpley, G Morrison, T S Purewal.*

*Royal Liverpool and Broadgreen University Hospital*

### Introduction:

Whilst albumin/creatinine ratio (ACR) is now recommended in the assessment of nephropathy in uncomplicated diabetes mellitus, 24-hour urine collection remains the recommended method in pregnant women with pre-gestational diabetes (PGD). This method is time-consuming and logistically problematic for the patient, which may result in collection errors and poor compliance.

### Aim:

To determine whether random ACR is a sensitive, reliable alternative to 24-hour urine for renal assessment during pregnancy in women with PGD.

Methods:

Women attending a joint Endocrine and Obstetric clinic between 2004 and 2010 with PGD were included. Patients must also have at least one paired result of random ACR and 24-hour urine for inclusion. Correlation was assessed by Spearman's rho for non-parametric data.

Results:

106 paired values were obtained from 75 pregnancies in 68 women. The mean age was 30 (SD 5.05), with median years since diagnosis of 10 [IQR 7, 16.5]. 55 (73%) had type 1 diabetes, 39 (52%) were treated with an insulin pump and median HbA1c was 6.5% [IQR 5.8, 7.2]. Pre-gestational complications included nephropathy (3%), hypertension (5%) and retinopathy (25%).

## **6 Risk factor control, biochemical and clinical outcomes in a DGH diabetes renal clinic.**

*Dr Andrew Macklin.*

*Dorset County Hospital, Dorchester.*

The diabetes renal clinic (DRC) has been running for 10 years. Data in this abstract relates to survivors, with additional data for dialysis & mortality to come.

53 cases were analysed: mean age was 66.5 years, with a mean duration of diabetes of 21.5 years. 13 were diagnosed as having type 1 diabetes & 38 had at least an element of Diabetic nephropathy.

Renal diabetes clinic follow up averaged 5.8 years, with a mean 5.2 years of secondary care clinics before referral.

The mean values at first & last DRC were: SBP(mmHg) 148:132, Total Cholesterol(mmol/l) 4.8:4.1, HbA1c(mmol/mol) 70:65, Creatinine(umol/l) 145:189 & weight(Kg) 94.8:95.8.

## **7 Can provision of ambulatory blood pressure monitoring lead to better blood pressure management in specialist diabetes clinic?**

*Dr Brian Mtemerwa, Handi Salim, Hannah Lo, Angela Murphy, Dr Sandip Ghosh, Dr Wasim Hanif.*

*University Hospitals Birmingham NHS Foundation Trust.*

**Aim:** Aggressive blood pressure (BP) management significantly improves outcomes in patients with diabetes renal disease. In our Diabetes Renal clinic, a treat to target approach of 125/75 mm Hg, has been adopted. We now report a prospective re-audit of BP management in this specialist clinic over a five week period.

**Methods:** Local Protocol targets were derived from British Hypertension Society guidelines for Diabetes-Renal disease. Data was collected prospectively and clinic letters reviewed regarding BP management. Standard for BP control was a BP of 125/75 mm Hg.

**Results:** 64 patients were seen, 57 white Caucasian and 37 were men. Median age was 69 years and median eGFR was 38.5 ml/min. All patients had recent HbA1c levels checked. 28% had HbA1c < 7.5% and 72% had HbA1c > 7.5%; 22% had HbA1c >9%. 58 out of 64 people had urine ACR measurement. 8 men (24%) and 10 women (40%) had normal ACR. 70% had a clinic BP of more than 130/80 mm Hg and 76% of these patients had no BP management action plan documented! More than 50% of patients with clinic BP more than 130/80 mm Hg used than 3 antihypertensives. 43.8% took ACE inhibitors, 40.6% on calcium channel blockers and 31.3% took angiotensin receptor blockers.

**Conclusion:**

This demonstrates difficulties clinician face interpreting clinic BP recordings. Consequently there was inadequate communication to GPs regarding BP management. We propose provision of 24 hour ambulatory BP monitoring in specialist diabetes clinics in line with NICE guidelines to improve this and re-audit outcomes.

## 8 **Audit of diabetic control of the haemodialysis patient population.**

*Dr Muhammad Imtiaz, Dr Helen Collinson, Dr Naseeb Akhter, Dr Firas Yassin.  
Hull Royal Infirmary*

Diabetes Mellitus (DM) is leading cause of End stage renal disease. Control of blood glucose levels remains important in view of the ongoing risk of diabetic complications including retinopathy. Current NICE guidelines (2011) suggest monitoring of diabetic control using HbA1c levels. The recommended level in diabetic patients is 6-7%. Acceptable control in haemodialysis (HD) patients is 7%.

An audit of the chronic haemodialysis population in Hull revealed 32 patients (22% of total) with DM. Mean age was 68.36 years, 57% male, 43% female. Type1 Diabetics, 28%, Type 2, 72% - some insulin requiring. 62.4% of the total were on insulin, 12.5% tablet treated and 25% on diet alone.

Patients were stratified into two groups based on HbA1c level; less than 7% and greater than 7%. Data on HbA1c was missing for 10 (31%) patients.

31.3% of patients had HbA1c greater than 7% and had a 1.5 times higher admission rate due to diabetic complications (hypo or hyperglycaemia, diabetic foot, cardiovascular event). 66% of patients with Type 1 DM had poorer diabetic control (HbA1c >7%) compared to 37% of type 2 DM. HbA1c >7% prior to commencement of HD was identified as a risk factor for ongoing poor glycaemic control on HD.

Haemodialysis patients with DM need ongoing follow-up for diabetic control with regular measurement of HbA1c. These patients are at an increased risk of co-morbidities and complications that can lead to increased hospital admissions. Joint Diabetic-Renal clinics for patients with HbA1c >7% are recommended.

## 9 **A questionnaire survey of diabetic patients attending outpatient clinics.**

*Surya Rajeev, Dhanya Kalathil, Paula Chattington.  
Warrington & Halton NHS Hospital Foundation Trust.*

Patient satisfaction and awareness is one of the most important tools to monitor the efficacy of service provision. We did a survey on 35 patients attending diabetes outpatient clinics using a structured questionnaire based on NICE recommendations.

13 patients had type 1 diabetes and 22 had type 2 diabetes. Mean duration of diabetes was 16.6 years. 27 patients were on insulin. 60% reported that they had structured education at diagnosis. 83% answered they had dietary advice at diagnosis.

When asked about HbA1c, 34/35 have heard the term. 66% were aware of the significance, but only 9% knew what their target was. 29% felt they were involved in decision making process.

All patients had been taught home BG monitoring and tested from none to >4 times daily. Out of the 27 on insulin, 89% felt that their doses were titrated to achieve targets. 44% answered that they had structured education and continuing telephone support for this.

We also tried to check patient awareness on hypoglycaemia during driving. Out of the 19 insulin treated patients who drive, only 1 was aware of the time limit before continuing to drive after having hypoglycaemia while driving. There is specific DVLA guidance about diabetes and driving but patient awareness and retention of this information is low.

HbA1c has been available in the diabetic clinics for the last decade and many patients had received structured education but understanding and perceived involvement with their care was poor. Despite this 91% who completed the survey felt satisfied with the service.

## 10 The effect of Incretin based therapies on cardiovascular risk in routine care of Type 2 Diabetes.

*Christopher Smith, Sophie Sneddon, Nicholas Roe, Dr Russell Drummond.  
NHS Greater Glasgow and Clyde.*

### *Aims/Objectives*

Incretin based therapies are not simply glucocentric but also confer weight benefits and possible blood pressure reduction. GLP-1 analogues lower weight and Liraglutide also blood pressure (BP).

We analysed the relative cardiovascular risk benefit of these agents in a planned, observational study of routine care in a university hospital.

### *Methods*

We analysed the effect on HbA1c, weight, and systolic BP over 12 months. The UKPDS calculator was used to calculate cardiovascular risk. *T* test determined statistical significance. We corrected for sex, age, diabetes duration, heart rhythm and smoking status.

### *Results*

Exenatide (n=102) lowered mean HbA1c from 9.41% to 9.08% (p=0.04), weight from 110.35kg to 105.82kg (p<0.001) but not systolic BP (134.76mmHg to 134.11mmHg (p=0.29)). UKPDS risk for CHD lowered from 18.5% to 16.3%.

Liraglutide (n=97) lowered mean HbA1c from 9.94% to 9.42% (p=0.003), weight 107.97kg to 104.07kg (p<0.001) as well as systolic BP 138.36mmHg to 134.84mmHg (p=0.04). UKPDS risk for CHD fell from 22.4% to 20.2%.

Finally Sitagliptin (n=102) lowered HbA1c from 9.22% to 8.95% at 12 months (p=0.07) and had no effect on weight (93.30kg to 92.72kg p=0.44) or systolic BP (137.03mmHg to 139.81 mmHg p=0.29). UKPDS risk fell from 18.5% to 17.3%.

### *Conclusion*

In our population we have shown, similar to previous data, that while all 3 agents lower HbA1c exenatide and liraglutide treatment is associated with weight loss, and liraglutide with reduced blood pressure. All 3 agents were associated with a reduction in CV risk scores, an effect more marked in patients using GLP1 agonists.

## 11 What is it like to participate in shared haemodialysis care? A qualitative study of patient and staff experience.

*Liz Glidewell, Stephen Boocock, Kelvin Pine, Rebecca Campbell, Martin Wilkie on behalf of the Yorkshire and Humber Sharing Haemodialysis Care project team.  
Leeds Institute of Health Sciences*

### Background

Shared-haemodialysis-care (SHC) can improve patient safety, satisfaction and may reduce costs. SHC aims to redefine the nursing role to emphasise patient empowerment. We do not understand why people participate, or not.

### Methods

We conducted semi-structured interviews with patients (who are participating or not) and Health Care Professionals (nurses and health care assistants) in two hospital sites. Interview data were coded to psychological theory to learn how best to implement SHC.

## Results

Some patients don't want to participate. However, most don't realise that they are: "everyone's doing a bit of something".

Some patients were approached by staff, whilst others observed patients undertaking SHC. Some staff are afraid to be asked questions by patients.

Each patient varies in their involvement, and utilise more nursing care on some days. SHC has a number of benefits: e.g. regaining control; keeping sessions to time if able to deal with alarms; and understanding more about their care (e.g. eating).

Needling is frequently viewed as complex and something to be feared:

"I'm not doing my own needles, hell will freeze over first before I do that...when they started with this button holing... they said you can't bump it because if needles gone in right, it won't go anywhere, just right, so I thought I'll give it a go, and I get on with it fine"

## Discussion

Coding unique stories to psychological theory has allowed us to better understand the barriers to implementing SHC (e.g. knowledge; emotion; roles and responsibilities) from a staff and patient perspective.

## **12 An audit of the use of the new Scottish diabetic ketoacidosis care pathways in an inner city teaching hospital.**

*Dr Supriya Mathur, Dr Russell Drummond.*

*NHS Greater Glasgow and Clyde.*

### Background

Diabetic ketoacidosis (DKA) is an acute, major, life-threatening complication of diabetes.

To support the delivery of safe and effective management of diabetes in hospital, the Scottish Diabetes Group have developed two care pathways for diabetic ketoacidosis, for implementation across NHS Scotland. The new pathway was introduced in August 2011 across the NHS Greater Glasgow and Clyde (NHSGGC) region.

Part 1 aims to improve management of DKA within the first 4 hours of presentation. Part 2 guides management from 4 hours till discharge. A planned, prospective audit of clinical outcomes was undertaken.

### Aim

We audited the use of this pathway for patients admitted to the medical high dependency unit of the Glasgow Royal infirmary between August and October 2011. This audit focuses on 11 key performance indicators detailed below.

### Methods

A standardised audit form is being used in NHSGGC hospitals. Data from 18 consecutive episodes of DKA were collected.

## Results

Performance indicator	Result in % (n= no. of episodes analysed )	
Part 1 used	77.7%	(18)
Part 2 used	55.5%	(18)
Correct diagnosis made	94.4%	(18)
Fluids given within 30 minutes of presentation	35.29%	(17)
Intravenous insulin commenced within 60 minutes	50%	(16)
Basal insulin prescribed	25.5%	(17)
Potassium checked at 4 hours	76.47%	(17)
Potassium checked and recorded at 8 hours	47.05%	(17)
Intravenous glucose commenced when blood glucose <14 mmol/L	88.23%	(17)
Diabetes team informed	94.4%	(18)
Timely switch to subcutaneous insulin	61.1%	(18)

### Conclusion

Further education and awareness is required in the use of this pathway with emphasis on prompt fluid resuscitation and prescription of basal insulin.

### 13 Translating the findings from a study of eGFR changes post fibrate treatment into patient management.

*Dr Mithun Bhartia (1), Ahmed Abbas (2), Jessie Raju (2), Sudarshan Ramachandran (2)  
(1) Good Hope Hospital; (2) Southmead Hospital, Bristol.*

We present the case of a 62 year old male with diabetes, dyslipidaemia, hypertension, and chronic kidney disease (stage 3). In 2011 his treatment included metformin, simvastatin, atenolol, lisinopril and allopurinol.

We had previously carried out a study of 132 consecutive patients started on fibrates in the lipid clinic between 2002 and 2008. Of these patients 79 patients had pre and post-fibrate eGFR <90 ml/min/1.73 m<sup>2</sup>. Analysis of the eGFR change showed that 50%, 25% and 10% of patients demonstrated decreases of 8 ml/min/1.73 m<sup>2</sup>, 16 ml/min/1.73 m<sup>2</sup> and 21 ml/min/1.73 m<sup>2</sup> respectively following fibrate treatment. Although creatinine levels have been shown to increase with fibrates, no previous study has translated this to a change in eGFR.

In view of raised triglycerides (4.4mmol/l) and low HDL-C (0.9mmol/l) bezafibrate was initiated. It was noted that his eGFR decreased from 48 ml/min/1.73 m<sup>2</sup> (creatinine 134 µmol/l) to 30 ml/min/1.73 m<sup>2</sup> (creatinine 199 µmol/l). The bezafibrate was discontinued and the renal function was monitored. The patient continued on metformin. After 3 weeks of follow-up the eGFR increased to 43 ml/min/1.73 m<sup>2</sup> (creatinine 149 µmol/l).

Awareness of previous study findings influenced patient management in the following ways;

- Despite the eGFR of 30 ml/min/1.73 m<sup>2</sup> the metformin was continued following discontinuation of the bezafibrate. This single action approach allowed us to methodically evaluate the cause of the eGFR change.
- The approach taken prevented the patient from being subject to further investigations and referrals.