



## The 3<sup>rd</sup> Joint Meeting of the Association of British Clinical Diabetologists and the Renal Association Diabetes and Kidney Disease: Advances and Controversies

Tuesday 28<sup>th</sup> February 2017  
National Exhibition Centre, Birmingham

### ABSTRACTS

#### **1 Is Methoxy polyethylene glycol-epoetin beta better than shorter acting erythropoiesis stimulating agents in treating anaemia of chronic kidney disease in patients on dialysis.**

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Anaemia is a major problem in patients with chronic kidney disease. More than 90% of patients with eGFR of less than 25 ml/min suffer from anaemia of chronic kidney disease. The innovation of erythropoiesis-stimulating agents changed the way of treating anaemia in this group of patients by decreasing the dependence on blood transfusion with all its risks. The three mainly used erythropoiesis-stimulating agents are epoetin, darbepoetin alpha and Methoxy polyethylene glycol-epoetin beta. This research aims to investigate the efficacy of Methoxy polyethylene glycol-epoetin beta and whether it is better than shorter acting erythropoiesis-stimulating agents (epoetin and darbepoetin) or not. Critical analyses of relevant studies in the literature was done to answer the research question. The main results of the analyses showed that there is a strong evidence that Methoxy polyethylene glycol-epoetin beta is effective in achieving and maintaining stable haemoglobin levels in patients on haemodialysis. The safety profile of Methoxy polyethylene glycol-epoetin beta is essentially equal to the other erythropoiesis-stimulating agents. Although it may be arguably labelled as essentially having similar efficacy, two points can favour it over the other agents. Firstly, there is a good evidence that it requires fewer dose adjustments to stabilise the haemoglobin levels. Secondly, health professionals require significantly less time to prepare and deliver it. This will result in saving potentially significant time, effort and cost in comparison to other erythropoiesis-stimulating agents. In conclusion, Methoxy polyethylene glycol-epoetin beta can be recommended as first-line treatment for patients with anaemia of chronic kidney disease who are already on haemodialysis.

#### **2 Improved patient care and efficiency savings following the introduction of a virtual integrated multidisciplinary diabetic renal meeting.**

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Diabetic nephropathy is a leading cause of end-stage renal failure. Management objective is to exclude other causes, prevent decline of renal function, manage cardiovascular risk and complications of both diabetes mellitus (DM) and chronic kidney disease (CKD).

We performed a 3-year audit of 88 patients (59 male, age 68 +/-14years) who attended the diabetes-renal MDT service at District General Hospital. Results are presented as medians and

ranges according to data distribution.

Median HbA1C and Hb were similar throughout the study (HbA1C 63 (39-131)mmol/mol, vs 61 (40-109)mmol/mol; Hb 117 (81-153)g/dL vs 115 (82-161)g/dL; NS). Cholesterol improved with MDT attendance (4.0 (2.4-6.7)mmol/mol vs 3.6 (2.1-5.7)mmol/mol;  $p=0.005$ ). We reduced use of sulphonylureas (20/88 patients before vs 10/88 after MDT;  $p=0.019$ ). Renal bone disease screening improved with MDT (60/88 vs 77/88 patients;  $p=0.001$ ).

Follow-up was organised in the appropriate clinic (renal only if biopsy, immunosuppression, dialysis or transplant were needed). 51/88 patients were allocated to both, 23/88 to diabetes clinic only and 7/88 to renal clinic only. Remaining patients were discharged to the GP/community/other trust with clear follow up instructions. The number of specialist outpatient appointments was reduced (300/year before vs 262 in the consecutive year). At a cost of approximately £200 per clinic, total savings of £7600 were made (£86 per patient/year).

An integrated approach enhances clinical care and minimises outpatient visits. We have created a simple and comprehensive pathway for screening and management of patients with diabetes and CKD.

### **3 Insulin glargine 300 U/mL (Gla-300) provides more stable and more evenly distributed steady-state pharmacodynamic (PD) and pharmacokinetic (PK) profiles compared with insulin degludec in type 1 diabetes (T1DM).**

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Aim: Compare steady-state PD and PK profiles of insulin glargine 300 U/mL (Gla-300) with insulin degludec 100 U/mL (Deg-100) in two parallel cohorts with fixed once-daily dose regimens in T1DM, in a multiple-dosing, crossover, euglycemic glucose clamp study.

Methods: For both insulins participants received 0.4 (Cohort 1;  $n=24$ ) or 0.6 U/kg/day (Cohort 2;  $n=24$ ), before breakfast, for 8 days. Metabolic activity was measured by glucose infusion rate (GIR) over 30 hours. Main endpoint: within-day variability (fluctuation) of smoothed GIR over the dosing interval (GIR-smFLO-24; treatment ratios were obtained using a linear mixed-effects model). Insulin concentrations were measured using validated radioimmunoassays.

Results: GIR-smFLO-24 was significantly lower with Gla-300 than Deg-100 at 0.4 U/kg/day ( $p=0.047$ ; treatment ratio 0.7978 [90% CI: 0.6637 to 0.9591]) (LOESS smoothing 0.15), and was comparable for Gla-300 and Deg-100 at 0.6 U/kg/day. Both doses of Gla-300 provided plateau-like insulin exposure from 2 to 16 hours post-injection, with a slight decline afterwards, whereas Deg-100 concentrations (total insulin) after both doses increased from ~1 hour to a  $T_{max}$  at ~10 hours after dosing, followed by a steady decline with no plateauing. Both insulins provided exposure and activity until 30 hours and were generally well tolerated.

Conclusions: This PK/PD analysis supports a superior glucodynamic profile of Gla-300 versus Deg-100 at a dose clinically relevant for T1DM (0.4 U/kg/day), in terms of within-day variability. An overall more stable and more evenly distributed insulin exposure over the dosing interval was observed at both dose levels under Gla-300.

Study supported by Sanofi.

### **4 Characteristics of patients with diabetes admitted with AKI (Acute Kidney Injury) in a District General Hospital.**

*George S; Berresford C; Morlidge C; Winocour P; Marshall C East and North Hertfordshire NHS Trust.*

### **5 Medicines management in patients with diabetes admitted with AKI (Acute Kidney Injury) in a District General Hospital.**

*Marshall, C; Berresford C; Morlidge C; Winocour P; George S. East and North Hertfordshire NHS Trust.*

## **6 Monitoring and management of Cardiovascular risk factors in patients with advanced diabetic nephropathy.**

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Clinical care: healthcare delivery and improvement

Monitoring and management of Cardiovascular risk factors in patients with advanced diabetic nephropathy

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Background & Aims: Diabetic nephropathy is one of the most important complications of diabetes and these patients have very high cardiovascular risk. The audit was to look into whether these patients are being monitored and managed appropriately particularly the cardiovascular risk factors.

Methods: Retrospective Data was collected from the previous OP clinic attendances of the patients being followed up in advanced diabetic nephropathy clinic. Total patients included were 60.

Results:

Mean age was 70 years and 63% were male. 93% had type 2 DM. 12% were on dialysis at present. 90% of patients had their eGFR checked in last 12 months. 20% of patients did not have their CKD stage documented in last visit. 93% and 98% had urine ACR and serum creatinine checked in last 12 months respectively. 53% patients had their BP within target on last visit (<130/80). 81% were currently using ACEI/ARB. 98% had HbA1c checked in last 12 months and 65% had HbA1c within target (<58 mmol). 85% patients were on a statin at present and 57% had cholesterol within target (Total Cholesterol <4).

Conclusion: The audit results showed that the monitoring of patients was up to standards apart from documenting the CKD stage, but it was difficult to achieve an optimal diabetic control and to keep the blood pressure within target.

## **7 The clinical significance of blood ketone measurement in hyperglycaemic in-patients with insulin treated diabetes mellitus and end stage renal failure.**

*Huang, F; Koo M; McMillan M; Ghouri N*

*Queen Elizabeth University Hospital, Glasgow*

## **8 Audit of haemodialysis inpatient with comorbid diabetes.**

*Hellena Hailu Kumela, Jill Lomas, Dr D.C Patel. Dr M. Rosenthal Basil Francis, Dr Kin Yee Shiu, Frehiwot Hailu*

*Diabetes Department Royal Free London NHS Trust*

Background

Diabetes is the leading cause of end stage renal disease (ESRD) worldwide. In the UK approximately one third of patients with diabetes will develop ESRD, with a significant proportion of these patients requiring renal replacement therapy (O'Toole et al, 2014). Hypoglycaemia is common in diabetes patient who receive maintenance haemodialysis. This is thought to be due to; impaired renal gluconeogenesis, malnutrition, and the increased half-life of anti-hyperglycaemic agents (KDOQ, 2007). Optimising glycaemic control in patients with diabetes undergoing maintenance haemodialysis requires accurate assessment of glycaemic status, appropriate alteration of prescribed anti-hyperglycaemic medication doses for dialysis and non-dialysis days to minimise the risk of hypoglycaemia.

Aim

Assess glycaemic management of haemodialysis inpatient with comorbid diabetes against JBDS

guideline for Management of adults with diabetes on the haemodialysis unit.

#### Method

A retrospective case note review of 130 haemodialysis patients, with co-morbid diabetes, admitted to the renal inpatients unit between April –June 2016 were included. This data was audited against criteria from JBDS guideline assessing number of hypoglycaemic episodes in each patient to determine whether this was associated with

1. Dialysis versus non-dialysis days
2. Time to control hypoglycaemic episode
3. Length of stay

#### Results

In our population, we found that 39% of patients had hypoglycaemic episodes during the study period with a mean HbA1c 52.2mmol/mol. We also noted 28.3% had HbA1c below 42mmol/mol suggesting recurrent hypoglycaemia. Further analysis and results will be presented.

#### Conclusion

The findings of this audit will be used in improving glycaemic management haemodialysis inpatients with comorbid diabetes.

### **9 Early Death in Type 1 Diabetes.**

*Hannah McPherson, John McKnight; Stuart Ritchie.*

*University of Edinburgh. Western General Hospital, NHS Lothian.*

### **10 Outcome of Renal Biopsy in patients with Diabetes.**

*Madhyastha, R; Mariah, S.*

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The clinical consequences of the results obtained by kidney biopsy in patients with diabetes mellitus Type 1 or Type 2 have been controversial. Our study was conducted to assess histological diagnoses in patients with diabetes mellitus Type 1 and Type 2 undergoing kidney biopsy. This retrospective analysis includes the biopsy findings of all the consecutive renal biopsies of patients with diabetes mellitus Type 1 or 2 from October 2015 to October 2016 examined by standard histopathological procedures. The main outcome measures were the incidence of diabetic nephropathy (DN) and glomerulonephritis (GN) and their subsequent treatment measures taken.

### **11 An unusual case of rapidly progressive chronic kidney failure in patient with insulin treated Type 2 diabetes and chronic microvascular complications.**

*Marga M, Roberts G, Pinto LP.*

*Department of Diabetes and Endocrinology, Nevill Hall Hospital; Department of Nephrology Royal Gwent Hospital, ABUHB; Department of Pathology, UHW.*

### **12 Three-times-weekly insulin therapy: the Hammersmith haemodialysis experience.**

*Mills, E; Yap H; Reed J; Dornhurst A.*

*Imperial Centre for Endocrinology: (Hammersmith Hospital), Imperial College Healthcare NHS Trust.*

### **13 Anti-diabetic therapy in patients with type 2 diabetes and renal impairment.**

*Min, T; Davies GI; Rice S; Chess J; Stephens JW.*

*Diabetes Unit, Morriston Hospital, Swansea.*

*Renal Unit, Morriston Hospital, Swansea.*

*Data Science, Swansea University, Swansea.*

### **14 Effect of dapagliflozin on renal function.**

*Min, T; Williams DM; Wali L; Gurung A; Plummer E; Price DE; Stephens JW.*

*Diabetes Unit, Morriston Hospital, Swansea.*

### **15 Audit of secondary care diabetes and renal follow up in patients with moderate to severe CKD.**

*Sabin, J; Dasgupta, T; Bhattacharya B.  
Great Western Hospital, Swindon.*

**16 A Comparison between the Joint Renal Diabetes Clinic and General Diabetes Clinics in a District General Hospital.**

*Idowu, O; Jayashekara, A.; Chequer, S.; Hardy,D.; Summerhayes, B.; Zac-Varghese, S.; Winocour, P.  
ENHIDE, East and North Herts NHS Trust.*

**17 Anaemia in Patients with Diabetes and Chronic kidney disease.**

*Jayashekara, A; Idowu, O.; Chequer, S.; Hardy,D.; Summerhayes, B.; Zac-Varghese, S.; Winocour, P.  
ENHIDE, East and North Herts NHS Trust.*

**18 Assessing the prevalence of cardiovascular risk factors amongst patients with diabetes and chronic kidney disease.**

*Zac-Varghese, S; Jayashekara, A.; Idowu, O.; Chequer, S.; Hardy,D.; Summerhayes, B.; Joharatnam, J.; Winocour, P.  
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**19 Audit on the management of microalbuminuria in people with Type 2 diabetes in secondary care.**

*Zaman, S; Mehta S; Baynes K.  
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