

Diabetes and Endocrinology symposium

¹K Muir, ²S MacRury

¹Clinical lecturer/Specialty trainee, University of Aberdeen and NHS Grampian, Aberdeen, UK; ²Consultant Diabetologist and Endocrinologist, Department of Medicine, Raigmore Hospital, Inverness, UK

The Diabetes and Endocrinology symposium was held on 29 October 2014 at the Royal College of Physicians of Edinburgh

DECLARATION OF INTERESTS No conflict of interests declared

Correspondence to K Muir
JJR Macleod Centre for Diabetes &
Endocrinology
Aberdeen Royal Infirmary
Foresterhill
Aberdeen AB25 2ZN
UK

e-mail kenneth.muir@nhs.net

This symposium attracted specialty consultants, general practitioners, trainees and other members of the multidisciplinary team from around the UK and via live stream to 18 countries on three continents. The symposium covered a wide range important and topical areas from translational medicine to transitional care.

SESSION 1: DRIVING CHANGE FROM THE CLINIC TO THE LAB

Professor Sarah Wild (University of Edinburgh) presented findings from analysis of data from the Scottish Care Information – Diabetes Collaboration database (SCI-DC) relating to micro- and macrovascular complications. There are now data for over 300,000 individuals which is estimated to be over 99% of the total diabetic population. Important observations include the high prevalence in the > 70 year olds (1 in 7 women and 1 in 10 men) and emerging associations between social class 5 (low), deprivation, prevalence of type 2 diabetes and mortality as well as the overall higher relative risk for mortality for women (especially younger women) at 70% compared with 40% for men.

Professor Helen Colquhoun (University of Dundee) updated us on the Scottish Type 1 Bioresource: an anonymised tissue bank of serum, plasma, urine and DNA from patients with type 1 diabetes age 16 and over. The uptake to the study has been excellent with over 6000 participants, making it the largest bioresource in type 1 diabetes in the world. This will provide a dataset for research into areas including genetics, environmental factors and response to drugs. Early data analysis suggests life expectancy to be relatively more reduced in women (12.9%) compared with men (11.1%) with ischaemic heart disease being the contributor to mortality overall.

Professor Ewan Pearson (University of Dundee) closed the session with insights into tailored prescribing in diabetes. In contrast to what many of us were taught in medical school thiazolidinediones work best in obese people and metformin is better in insulin sensitive, leaner patients. Furthermore, metformin induced gastrointestinal upset may in fact be genetic with mutations in the OCT1 gene being implicated; up to 9% of the population may be affected, resulting in poor tolerance of metformin. We should consider stopping other OCT1 interacting drugs (e.g. proton pump inhibitors) if necessary as this may result in better metformin tolerance.

SESSION 2: ADVANCES IN DIAGNOSIS AND MANAGEMENT OF DIABETES

Dr Robert Lindsay (University of Glasgow) started the second session with an overview of the differences in gestational diabetes diagnostic criteria and the problems that having no unified diagnostic criteria worldwide have created with regards to interpreting evidence from the big studies and translating it to clinical practice. He highlighted the different prevalence rates generated by the various criteria with up to a threefold increase in gestational diabetes mellitus diagnosis in one particular study when applying lower blood glucose thresholds. The health economic aspects of diagnostic criteria were considered when determining the revised criteria for the National Institute for Health and Care Excellence 2014 gestational diabetes mellitus guidelines.¹

Professor James Shaw (Newcastle University) presented data from the Hypo COMPASS study, led by Dr Stuart Little, which demonstrated that the incidence of severe hypoglycaemia can be reduced in individuals with type 1 diabetes by means of structured re-education. Improvements were seen in both multiple daily injection

and continuous subcutaneous insulin infusion groups, but severe hypoglycaemia was not eliminated completely. This was followed by an update on the UK islet transplantation program based on the Edmonton protocol, which is targeted specifically to those experiencing disabling severe hypoglycaemia. Although insulin independence is typically not sustained following islet transplantation, complications are low, and the reduction in severe hypoglycaemia is striking.² Although there is a big focus on donor shortage, currently the biggest limiting factor in wider adoption are the risks of lifelong immunosuppression. Transplant encapsulation is one potential way of addressing this.

The session closed with an update on the management of gastroparesis by Professor Grant Fullarton (University of Glasgow). The prevalence of gastroparesis in diabetes is around 10% – typically presenting with vomiting, fullness and weight loss which contrast idiopathic gastroparesis where abdominal pain and bloating are more prominent features. Pharmacological therapy has an increasingly limited role due to the reduction in available agents and lack of efficacy. Gastric electrical stimulation has been approved by the National Institute for Health and Care Excellence in specialist centres, following modest improvement demonstrated in the GEMS and WAVES studies. Although gastric emptying doesn't improve greatly, quality of life, vomiting frequency, HbA1c and hospital stays are reduced. Newer prokinetic agents that may come to the fore include azithromycin, TZP-101 (ghrelin agonist) and even stem cell regeneration of intestinal cells.

SESSION 3: TRANSITION SERVICES: WHO, WHAT, WHY AND WHEN

Recent publications have highlighted the importance of robust services in the transition between paediatric and adult care.^{3,4} This is becoming increasingly important as the management of chronic diseases improves, and more patients are transitioning to adulthood.

Dr Colin Perry (Western Infirmary, Glasgow) gave an overview of transitional endocrine care in Scotland presenting findings from the Scottish audit of transition led by Nicola Zamitt (2012). There is an identified clinical lead in only three of ten regions in Scotland with considerable variation in practice with regard to transition ranging from a simple transfer letter to a single joint appointment with paediatrics to a dedicated transition clinic. The most common barrier (> 50%) to establishing a transition clinic was low patient numbers. Professor Faisal Ahmed (University of Glasgow) spoke on congenital adrenal hyperplasia, a group of conditions where transitional care is very relevant and management needs to be age appropriate. After a brief overview of adrenal pathways the focus was on 21-hydroxylase

deficiency which accounts for over 90% of cases. There is widespread variation in clinical assessment and management throughout Scotland which may in part relate to around only 10% attending specialist centres and to a weak evidence base. Patients lost to follow up increase after the transition to adult services and there was the suggestion that a national register may be beneficial for longitudinal follow up.

Dr Nicoletta Sonino presented this year's Stanley Davidson Lecture on the psychological aspects of endocrine disease. It was an excellent overview of her extensive research in the field over the years. She introduced the concept of the 'allostatic' load where chronic exposure to stress may lead to metabolic and psychological effects mediated by raised levels of cortisol, C-reactive protein, catecholamines and the suggestion that prolactin could serve as a biomarker of allostatic load.

SESSION 4: COMMON 'LOWS' IN ENDOCRINOLOGY

The final session comprised three excellent presentations on topical and challenging areas.

Dr Robert Semple (University of Cambridge) discussed the investigative approach to patients without diabetes presenting with hypoglycaemia. This included timing and interpretation of insulin, pro-insulin and c-peptide assays, and the importance of close liaison with laboratory staff to achieve optimal clinical outcomes. A series of five interesting and unusual causes of hypoglycaemia in patients with and without a prior diagnosis of diabetes were presented to reinforce the messages. These included familial causes associated with hyperinsulinaemia; the first an autosomal dominant condition with associated hyperandrogenism and extreme insulin resistance presenting with low 2 hourly glucose on oral glucose tolerance test and also familial hyperinsulinaemic hypoglycaemia which presents with asymptomatic hypoglycaemia. Two further causes related to insulin antibodies were described, one where blocking antibodies impede insulin clearance and a further where development of IgG anti-insulin antibodies may manifest with labile diabetes.

Male hypogonadism was addressed by Professor T Hugh Jones (Barnsley Hospital). In our ageing and increasingly overweight population the prevalence of male hypogonadism is rising. The focus was on whom to investigate and when to offer treatment. Total testosterone measurements should only be routinely measured in those with symptoms of hypogonadism, and confirmed low on two appropriately timed (8am–10am) samples before investigating for an underlying cause and considering treatment. Screening for prostate cancer is essential before and after initiation of treatment. Although

there is currently no evidence that testosterone replacement causes prostate cancer the required long term outcome studies have not been performed.

The closing talk was by Professor Pierre-Marc Bouloux (Royal Free Hospital, London) who provided a review of the causes and presentations of hyponatraemia. We all know how difficult it can be to assess volaemia in a patient with hyponatraemia with even nephrologists getting it wrong 50% of the time. It was suggested that we favour biochemical analysis over clinical assessment in establishing an aetiology. The recent European guidelines on the management of hyponatraemia suggest treatment of acute, severe and symptomatic hyponatraemia with 150ml

3% NaCl repeated at 30 min intervals to raise sodium levels by 1–2 mmol/L per hour with frequent monitoring until clinical improvement occurs.⁵

CONCLUSION

This symposium brought together a number of influential speakers covering important and controversial topics in the specialty. In addition we were reminded of the exciting and ambitious research that is taking place in Scotland particularly with regards to diabetes which will undoubtedly translate to changes in the way we deliver patient care in the future.

REFERENCES

- 1 Diabetes in pregnancy: Management of diabetes and its complications from pre-conception to the postnatal period. NICE; 2008. <https://www.nice.org.uk/guidance/cg63> (accessed 5/2/2015).
- 2 Brooks AM, Walker N, Aldibbiat A et al. Attainment of metabolic goals in the integrated UK islet transplant program with locally isolated and transported preparations. *Am J Transplant* 2013; 13: 3236–43. <http://dx.doi.org/10.1111/ajt.12469>
- 3 Scottish Executive. Improving Health in Scotland: The Challenge. Edinburgh: The Scottish Executive; 2003. <http://www.scotland.gov.uk/Publications/2003/03/16747/19929> (accessed 5/2/2015).
- 4 The Royal College of Physicians of Edinburgh Transition Steering Group. Think transition. Developing the essential link between paediatric and adult care. Edinburgh: RCPE; 2008. <http://www.cen.scot.nhs.uk/files/160-think-transition-edinburgh.pdf> (accessed 5/2/2015).
- 5 Spasovsky G, Vanholder R, Allolio B et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia. *Eur J Endocrinol* 2014; 170: G1–47. <http://dx.doi.org/10.1530/EJE-13-1020>