

RCPE symposium – Diabetes and endocrinology: two sides of the same coin

S Mackin¹

The Diabetes and Endocrinology symposium was held on 26 October 2016 at the Royal College of Physicians of Edinburgh

Declaration of interests No conflicts of interest declared

Correspondence to:

S Mackin
Department of Diabetes and Endocrinology
Queen Elizabeth University Hospital
Glasgow G51 4TF
UK

Email:

stwhite@doctors.org.uk

Introduction

Diabetes and endocrinology are often considered discrete entities among specialists and non-specialists alike. We split job plans according to separate diabetes and endocrine activities, and some may classify their role as purely diabetologist or endocrinologist. This symposium aimed to refocus our specialty by recognising that while differences exist between the two, parallel themes are also seen. They are, in fact, 'two sides of the same coin'.

Session 1 – Hypertension: how do I...?

Professor Tony Heagerty (Manchester) led with a fascinating talk on managing hypertension in the diabetes clinic. Several studies have shown ambulatory and home blood pressure monitoring to be superior to clinic measurement in predicting cardiovascular outcome. Numerous treatment options are available; however, cardiovascular outcomes are dictated by achieved systolic blood pressure rather than the drug used. The ALLHAT trial was discussed, focusing on increased risk of diabetes with diuretics. Analysis showed only small differences in fasting blood glucose and most diabetes wasn't due to medication.¹ Potassium-sparing diuretics can negate these minimal effects.²

Dr Marie Freel (Glasgow) proceeded to debunk several myths of secondary hypertension. The indications for investigation were presented, with a reminder to consider it in worsening 'stable' hypertension. Contrary to popular belief, primary hyperaldosteronism isn't rare and making the diagnosis matters as it confers higher cardiovascular risk than essential hypertension. Diagnosis of pheochromocytoma is also simpler than perceived. Twenty-four hour urinary fractionated metanephrines and CT/MRI are generally sufficient. Diagnostic MIBG should be reserved for cases

of paraganglioma or large tumours (> 10 cm) suspicious of malignancy.

Session 2 – When and what to test in the patient with...

Professor Andrew Hattersley (Exeter) opened his talk on monogenic diabetes with a sobering question: 'Why are we more dismissive of diagnostic testing in diabetes than in endocrinology?' In UK patients under 30 years of age diagnosed with diabetes, 3.8% have monogenic diabetes. It should be considered in those with gestational diabetes, atypical type 1 or type 2. Screening costs are overestimated and largely cheaper than popular imaging tests. Positive antibodies exclude monogenic diabetes and urinary c-peptide can discriminate from type 1 after five years. Making the diagnosis reduces treatment burden. A clinical probability calculator can be found at www.diabetesgenes.org

Professor Peter Trainer (Manchester) turned the table to discuss the challenges of over-investigation: the pituitary incidentaloma. One study reported 40% prevalence of incidentalomas in research imaging yet only 1% benefited from further investigation!³ Several autopsy studies report high frequency of pituitary incidentalomas, of which 14% may stain for ACTH yet only 1% bear clinical significance. Inappropriate investigation incurs financial and emotional costs for the health service and patient. How can we minimise this? Where possible, biochemical testing should occur before imaging in investigation of pituitary disease, and imaging characteristics are key.

Session 3 – Insulin resistance

Professor Roy Taylor (Newcastle) gave an intriguing presentation on insulin resistance and the twin-cycle

¹Specialty Registrar in Diabetes and Endocrinology, Queen Elizabeth University Hospital, Glasgow, UK

hypothesis of pathogenesis of type 2 diabetes. His COUNTERPOINT study showed that very low calorie diets (800 kcal/day) can normalise fasting blood glucose within one week. Over 8 weeks, hepatic fat content reduces massively, liver insulin sensitivity increases and beta-cell function improves as pancreatic fat content decreases.⁴ These changes can be maintained after re-introduction of normal diet (COUNTERBALANCE study) proving that type 2 diabetes is reversible, even in longstanding disease.⁵

The intricacies of insulin resistance and hyperandrogenism in polycystic ovary syndrome were expertly presented by Dr Colin Duncan (Edinburgh). The complex relationship between luteinising hormone, hyperinsulinaemia, adiposity and insulin resistance was demonstrated. Lifestyle is an important risk factor in pathogenesis but prenatal androgen exposure confers additional risk. He reviewed evidence for treatments in polycystic ovary syndrome and metformin performs poorly compared to specific symptom-targeted treatments in all domains.

Dr Archibald Pitcairne Lecture

Professor Krishna Chatterjee (Cambridge) ended with the conundrum that is unusual thyroid function tests. Assay interference is not uncommon and can occur due to circulating antibodies such as anti-iodothyronine in Hashimoto's or variant albumin, but can be minimised using two-step assays. Biotin use can also cause significant interference mimicking hyperthyroidism. Thyroid hormone resistance is rare, and THR- β mutation is the most widely known cause. A new mutation in THR- β has recently been identified and is associated with a spectrum of clinical features in childhood. Ultimately, thyroid function tests must be correlated with clinical status.

Take home message

The symposium provided a stimulating and clinically relevant overview of shared themes encountered in diabetes and endocrinology. The speakers were expert in delivery and inspirational to delegates of all levels. Overall, they successfully demonstrated that diabetes and endocrinology are a continuum, or 'two sides of the same coin'.

References

- 1 Barzilay JI, Davis BR, Cutler JA et al. Fasting glucose levels and incident diabetes mellitus in older nondiabetic adults randomized to receive 3 different classes of antihypertensive treatment. A report from the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT). *Arch Intern Med* 2006; 166: 2191–201.
- 2 Brown MJ, Williams B, Morant SV et al. Effect of amiloride, or amiloride plus hydrochlorothiazide, versus hydrochlorothiazide on glucose tolerance and blood pressure (PATHWAY-3): a parallel-group, double-blind randomised phase 4 trial. *Lancet Diabetes Endocrinol* 2016; 4: 136–47.
- 3 Orme NM, Fletcher JG, Siddiki HA et al. Incidental findings in imaging research. Evaluating incidence, benefit, and burden. *Arch Intern Med* 2010; 170: 1525–32.
- 4 Lim EL, Hollingsworth KG, Aribisala BS et al. Reversal of type 2 diabetes: normalisation of beta cell function in association with decreased pancreas and liver triacylglycerol. *Diabetologia* 2011; 54: 2506–514.
- 5 Steven S, Hollingsworth KG, Al-Mrabeh A et al. Very low-calorie diet and 6 months of weight stability in type 2 diabetes: pathophysiological changes in responders and nonresponders. *Diabetes Care* 2016; 39: 808–15.