

RCPE Symposium – Diabetes and Endocrinology

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Introduction

This year's symposium explored various areas of ever-growing demand in diabetes and endocrinology. Patient-centred and patient-driven healthcare were recurring themes, with individuals increasingly seeking out hormonal treatments and new diabetes technologies. The impact of the specialty on the broader healthcare setting was also reinforced, and strategies for prevention and management of acute and chronic complications of common diabetes and endocrine conditions were discussed.

Session 1: Testosterone

Dr Channa Jayasena (Consultant in Reproductive Endocrinology and Andrology, Hammersmith Hospital, London) opened the first session with the pertinent question 'How can we use the evidence to be more consistent with our prescribing practice?' Low testosterone is common in middle-aged men, occurring in an estimated 33–50%, therefore, identifying who will benefit from testosterone replacement is challenging. Dr Jayasena suggested individuals with repeated fasting morning total testosterone levels <8 nmol/l are more likely to require treatment, while those with borderline low testosterone (8–12 nmol/l) need risk–benefit analysis. Sexual symptoms (erectile dysfunction, low libido and decreased morning erections) have the strongest correlation with low testosterone,¹ and people without these symptoms are unlikely to benefit from testosterone replacement. Evidence for increased cardiovascular and prostate cancer risk with testosterone treatment is unclear and may be dependent on patient age and the presence of other comorbidities, therefore, discussion with the individual is essential to ensure potential risks are understood and accepted.

Professor Richard Anderson (Consultant in Reproductive Medicine, University of Edinburgh and NHS Lothian Gender Identity Clinic, Edinburgh) followed with a fascinating talk on the expanding area of transgender medicine. The focus was on following a patient-centred approach while ensuring that safe doses of sex hormones are prescribed. Consideration of the reversible effects of sex hormones (muscle bulk, body shape, voice, hair distribution and menses) alongside the person's expectations will help tailor individualised treatment. Discussion regarding pretreatment fertility preservation, contraception and ongoing screening for relevant sex-specific cancers was also emphasised.

Dr Richard Quinton (Consultant Endocrinologist, Newcastle-upon-Tyne Hospitals, Newcastle) closed the session with an emotive presentation on congenital hypogonadotropic hypogonadism. Despite the presence of early red flags, such as micropallus, cryptorchidism, anosmia and deafness in 60–70% of affected individuals, the lack of pubertal development is often incorrectly dismissed as constitutional delay. As such, the age of meaningful diagnosis has remained static at 18–19 years, despite advances in genetic characterisation of the disease. Case examples highlighted the physical and psychological impact of delayed diagnosis, and the audience was urged to consider the diagnosis early and not be falsely reassured by weak indicators that puberty may have started. The optimal approaches to treat sex hormone deficiency and infertility in these patients were also highlighted.

Session 2: New diabetes technologies

To begin this topical session, the question 'In what year do you think over 50% of people with type 1 diabetes in Scotland will be using NHS-funded closed loop' was posed. An initially

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pessimistic audience was about to have their viewpoints challenged.

Dr Fraser Gibb (Consultant Physician, Royal Infirmary of Edinburgh, Edinburgh) opened with a stark reminder of the burden of capillary blood glucose testing for people with type 1 diabetes, with an expectation for at least seven blood glucose tests per day to realistically achieve a HbA1c below 7.5%. Dr Gibb showed a mean fall in HbA1c of 0.5% following the introduction of widespread Libre flash glucose monitoring use in Edinburgh. Crucially people carrying out the fewest blood glucose tests prior to Libre use were those who benefited most, challenging prescribing guidance requiring frequent finger prick blood glucose testing to meet NHS-funded Libre eligibility.

Mr Kevin Winchcombe (Nightscout Foundation) highlighted the power of social media and online diabetes communities in advancing diabetes self-management. Nightscout enables non-medically trained users to review and analyse cloud-based continuous glucose monitoring data on portable electronic devices, and subsequently create their own personalised closed-loop system. It was particularly poignant to hear the life-changing effects that this technology can have on patients' and their families' day-to-day lives. During the session he launched an online diabetes dictionary, designed for patients and physicians alike, to familiarise the uninitiated with the growing technological terminology.²

The session closed with the Dr Joseph Black Lecture presented by Professor Steven Russell (Associate Professor of Medicine, Harvard Medical School, Boston) who discussed his ground-breaking research into insulin-only and bihormonal closed-loop artificial pancreas systems. Early studies show these systems achieve tight glycaemic targets and reduced hypoglycaemia, without the need for robust carbohydrate counting or meal announcements.³ New developments in stable glucagon preparations mean that functioning bihormonal pump systems could become a reality as early as 2022, with insulin-only closed-loop systems scheduled to be Food and Drug Administration approved by 2020, which could revolutionise the treatment of type 1 diabetes.

Session 3: How do I manage...?

Dr Chris Thompson (Professor of Endocrinology, Beaumont Hospital, Dublin) discussed challenges in hyponatremia management. Fluid restriction is often not beneficial, and predictors for poor responders should be used to guide whether this will be an effective first-line treatment.⁴ Undiagnosed adrenal insufficiency is prevalent in a significant proportion of patients with hyponatremia, particularly those patients taking exogenous glucocorticoids such as fluticasone, which are often not recognised as a precipitant. While most patients who are chronically treated with glucocorticoids for endocrine disorders have good knowledge of 'sick day rules', fewer than a quarter of patients on long-term glucocorticoids as an immunosuppressive treatment have the same level of awareness.

This led nicely onto Dr Marie Freel's (Honorary Clinical Associate Professor, University of Glasgow, Glasgow) talk on adrenal crisis. The importance of preventing adrenal crisis was highlighted, via improvements in patient and physician education of the risks of adrenal insufficiency with any long-term steroid prescription and well-planned peri-procedural hydrocortisone management. The concept of relative adrenal insufficiency during acute illness in people with previously intact adrenal function was also discussed. Though the benefits of adjuvant hydrocortisone remains unclear in this patient group, it may be of benefit in refractory shock. Modified and delayed release forms of hydrocortisone were discussed as novel treatments for adrenal insufficiency; however, the benefits of these preparations over existing treatments are still unclear.

Dr Mark Vanderpump (Consultant Physician and Endocrinologist, The Physician's Clinic, London) gave a helpful overview of thyroid storm management. While rare, mortality is 80–100% without treatment. Clinical identification of the multisystem presentation and prompt treatment of both the thyrotoxicosis and any precipitants is the mainstay of management. He highlighted that simultaneous administration of several medications was required to reduce thyroid action in the treatment of this life-threatening condition.

In the final talk of the session Dr Aled Rees (Reader and Consultant Endocrinologist, Neuroscience and Mental Health Research Institute, Cardiff University, Cardiff) gave a practical overview of adrenal incidentaloma management based on the 2016 European Guidelines.⁵ The majority (80%) of incidentalomas are benign, and CT remains the modality of choice to facilitate assessment for malignancy, with no role for adrenal biopsy. Biochemical hormonal testing should also be carried out for all cases, remembering to first make a clinical assessment for signs and symptoms of hormonal excess. He highlighted the controversial topic of adrenal adenomas with evidence of autonomous cortisol secretion without clinical signs of Cushing's, and that it is unclear whether surgical treatment of those patients improves outcomes.

Session 4: Diabetes, medication and cardiovascular disease

Dr John Petrie (Professor of Diabetic Medicine, University of Glasgow, Glasgow) opened the final session with a valuable overview of the recent cardiovascular outcome trials for type 2 diabetes medications. Both GLP-1 agonists (liraglutide in LEADER trial) and SGLT2 inhibitors (empagliflozin in EMPA-REG, canagliflozin in CANVAS) have shown benefits in reducing macrovascular risk associated with diabetes. Metformin may not be as beneficial as first thought from UKPDS, though the ongoing REMOVAL trial has suggested some benefits, using carotid intimal thickness as a marker of cardiovascular disease. Updated diabetes guidelines, such as SIGN, reflect the need to consider cardiovascular risks in addition to glycaemic control when tailoring noninsulin-based therapy.

Professor Sarah Wild (Professor of Epidemiology, University of Edinburgh, Edinburgh) concluded with a sobering reminder that people with diabetes are still twice as likely to have cardiovascular disease than nondiabetic counterparts, with one-third of diabetes deaths attributable to cardiovascular disease. Over two-thirds of people with type 2 diabetes have two or more risk factors for cardiovascular disease.⁶ Social deprivation continues to have an impact, with higher rates of smoking and lower uptake of new diabetes technologies in lower socioeconomic classes.

Take home messages

The symposium addressed many areas of uncertainty and growing knowledge in diabetes and endocrinology, and the speakers provided a fantastic overview of the current evidence and guidelines to inform our clinical practice. However, the closing statement from Professor Wild summed up the day, 'We have plenty of work still to do!'

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