

Endocrinology update

Authors: Christopher Redford^A and Antonia Brooke^B

Introduction

Keeping endocrinology simple is something of a misnomer. The Royal College of Physicians (RCP) 2016 conference ‘Endocrine update’ was challenged to provide just this. A mixed audience of general physicians and endocrinologists were expectant and the day delivered as promised. It gave a clear and concise summary of approaches to common endocrinology conundrums for those of all backgrounds. The day waltzed through common scenarios with simple practical tips, enlightened us on the global impact of our changing lifestyle and also gave advice on how to avoid some of the more unusual pitfalls we encounter in clinical practice.

Incidental lesions

The morning launched straight into how to tackle the incidental discovery of an adrenal, pituitary or thyroid lesion. The doctrine of endocrinology, ‘only performing radiological investigations once clinical suspicion has been biochemically confirmed’, has been turned on its head with the increasing prevalence of incidental lesions. Common themes developed and it was immediately apparent that multidisciplinary team (MDT) interaction is key to ensuring best evidence-based decisions for our patients. All incidental lesions follow the same process; careful interpretation of the imaging, combined with appropriate biochemical testing (or cytology in the case of the incidental thyroid lesion).

For the adrenal lesions, Dr Dennedy outlined how increasing lesion size heightens concern of malignancy (particularly once above 4 cm). The densities of lesions are compared to that of water (zero Hounsfield units). Very low tissue density lesions, <10 Hounsfield units, are highly unlikely to be malignant (with some caution if there is an extra-adrenal malignancy). Those with pre-contrast computerised tomography density of >10 Hounsfield units usually require more detailed imaging; with early washout of contrast helping to establish the nature of lesions. While most incidental adrenal lesions are non-functioning, a significant proportion will be secretory.¹ The golden rule of never biopsying an adrenal lesion until a pheochromocytoma has been excluded was emphasised (and

even then, a biopsy is only considered if it is helpful to confirm metastases in the presence of a known malignancy). After a pheochromocytoma has been excluded, the consequences of low-grade cortisol secretion should be considered. The potential use of urinary steroid profiling to help in screening and follow up of adrenal tumours was discussed, along with the clear benefits of an experienced adrenal surgeon when operating on potentially malignant adrenal lesions.²

Again, size matters when deciding on how to follow up pituitary lesions and Dr Rees adopted a pragmatic approach in his own practice in the follow-up of microadenomas (<1 cm). He accepted that, with limited resources, it is reasonable to discharge those with no change in size after initial follow-up (with appropriate advice); although practice varies. However, the macroadenomas (>1 cm) need longer follow up as 20% will progress, and may subsequently threaten vision. Again, assessment for functionality is important (both ‘hypo’ and ‘hyper’ secretion). It was clear from the interaction using the keypads provided during the presentation that the approach the audience would take to the incidental pituitary lesion was variable. This reflected UK practice seen in a Society for Endocrinology audit on the subject in 2010.³

Although an experienced radiologist is essential in all incidental lesions, they are paramount in the assessment of the thyroid. An accurate description (according to ultrasound criteria in the British Thyroid Association guidelines⁴) can guide or avoid the almost inevitability of a fine needle aspiration of suspicious lesions. Given that up to 50% of the adult population have nodules, this could otherwise be overwhelming if radiological scrutiny was not applied.⁵ It was also a useful reminder that while the incidence of thyroid cancer has risen sharply, there has been no change in mortality – suggesting that the incidental lesions may frequently be of no clinical consequence.

Endocrinology in acute illness

Dr Higham gave an insightful review of the assessment of endocrinology in acute illness with a provocative title of ‘endocrine testing – yes or no?’ She presented a pragmatic approach for general medics and endocrinologists to follow when investigating inpatients, including which tests to avoid (such as thyroid function without prior suspicion of thyroid disease). She gave clear advice on assessing the cortisol axis with care, being aware of assay interference, concurrent exogenous steroid use and adjusting for reduced cortisol binding globulin in acute illness. With the advent of newer oncology treatments, such as the immune modulators (eg

Authors: ^AST6 in diabetes and endocrinology, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK; ^Bconsultant in diabetes and endocrinology, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK

ipilimumab), endocrinopathies are being more frequently seen. Around 11% of patients will develop hypophysitis on ipilimumab, demonstrating the need for close collaboration with endocrinologists when on these agents.⁶

Endocrinology in pregnancy

Equally challenging is when and how to assess endocrinology in pregnancy, which was beautifully outlined by Dr Druce. The requirement for trimester specific thyroid stimulating hormone (TSH) ranges encourages interaction with clinical biochemists. Dr Druce highlighted new data surrounding the risks of congenital malformations with both carbimazole and propylthiouracil (PTU), challenging our previous practice of pre-conception and first trimester use of PTU. While hormones in pregnancy, such as cortisol, can be difficult to interpret because of changes in binding globulins, diagnosing conditions such as pheochromocytoma and hypercalcaemia in pregnancy remains imperative to avoid adverse fetal and maternal outcomes. However, there was an acceptance that careful monitoring of conditions such as mild hyperparathyroidism might avoid the necessity for second trimester parathyroidectomy.

Rank Lecture

The Rank Nutrition Lecture by Professor Finer offered a superb overview of the catastrophic impact of obesity on the health of the nation and further support for the need for public health intervention. The staggering statistic of 3% global gross domestic product being spent on obesity-related complications quickly focused the mind.⁷ Obesity and type 2 diabetes mellitus (T2DM) should not be seen as separate entities, but part of a complex pathway of detrimental lifestyle change. It was eloquently reflected upon by his example of obesity and diabetes in Cuba. Reduced intake and a more physical lifestyle, triggered by an economic recession, quickly led to reduced prevalence of obesity and diabetes, both of which returned when the financial climate improved.⁸

The causal link was clear to see, but action to tackle this remains absent. He highlighted the need to focus on, not avoid, lifestyle change. Data supports that small amounts of weight loss (even 5%) can lead to regression of impaired glucose tolerance or T2DM and significantly reduce cardiovascular risk.⁹ While being realistic regarding weight loss, it was also made plain that we need to be far more aggressive in tackling cardiovascular risk factors; with only 40% of UK patients with T2DM reaching targets for blood pressure, cholesterol and glucose control (HbA1c).¹⁰ It was a fitting pre-prandial reminder that dietary choices and portion size are important in maintaining a moderate waistline. Never has there been so much left over pudding at an RCP day!

Reproductive endocrinology

Polycystic ovary syndrome

Professor Tomlinson started the afternoon with a fantastic overview of the metabolic dysfunction associated with polycystic ovary syndrome (PCOS). With 6–18% of women estimated to suffer with the condition, he expressed the need for physicians to take special care in managing the

associated cardiovascular risk factors.¹¹ Patients with PCOS are independently associated with the cardiovascular risk factors of insulin resistance, T2DM, hyperlipidaemia, hypertension and non-alcoholic fatty liver disease (NAFLD). Once NAFLD is established, a patient's cardiovascular risk increases up to fourfold.¹² Clear guidance into the use of fibrosis 4 scoring to assess patients' NAFLD risk and then timely referral to gastroenterology was provided.

Infertility

Mr Mathur gave an update on 'subfertility in 2016'. Age, although a barrier, was surprisingly not necessarily the key to fertility. Conceiving young seems to offer an added protection to long-term fertility. He outlined the impact terminology such as 'infertility' or 'sterility' has on a patient and the importance of assessing fertility as a couple. There was a fantastic insight into *in vitro* fertilisation (IVF) and embryo development via some time-lapse camera recordings, witnessing a fertilised egg develop into an embryo. A clear outline of the IVF process was then presented to give delegates an idea of what their patients go through at the fertility units.

Endocrine conundrums

In the final session, we were treated to a varied array of case studies shared by Dr Gurnell and Dr Levy. These gave an insight into the potential for laboratory and medication pitfalls when interpreting biochemistry, alongside the need to rouse our suspicion if we are to correctly diagnose rare endocrine conditions. A careful explanation of assay interference was a useful reminder not to continuously titrate up levothyroxine doses until atrial fibrillation has been achieved, without considering the alternatives! A fascinating case of cranial diabetes insipidus, from a pituitary metastasis, being treated by anti-diuretic hormone produced by a bronchial carcinoma (SIADH) finished the day with a reminder of what an interesting and challenging specialty endocrinology is.

Conclusions

It is clear that endocrinology is changing, with the advent of new therapies with endocrine complications, incidental endocrine gland abnormalities, as well as new endocrine complications as a result of 21st century living. The day provided an excellent chance for clinicians from a variety of backgrounds to mix and enjoy some tranquillity and education while escaping from the political upheaval outside in post-Brexit London. ■

Conflicts of interest

The authors have no conflicts of interest to declare.

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Address for correspondence: Dr Antonia Brooke, MacLeod Diabetes and Endocrine Centre, Royal Devon and Exeter Hospital, Wonford, Exeter EX2 5DW, UK.
Email: antonia.brooke@nhs.net

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