Endocrinology Practice Review™

Making Education Easy

Issue 9 - 2023

In this issue:

Abbreviations used in this issue:

AANMS = Australasian Association of Nuclear Medicine Specialists; **ADEA** = Australian Diabetes Educators Association; **ADS** = Australian Diabetes Society; **ANZCA** = Australian and New Zealand College of Anaesthetists; **AUSDRISK** = Australian type 2 diabetes risk assessment tool; **BMD** = bone mineral density; **BMI** = body mass index; **BSPED** = British Society for Paediatric Endocrinology and Diabetes; **CCLG** = Children's Cancer and Leukaemia Group; **DKA** = diabetic ketoacidosis; **ESA** = Endocrine Society of Australia; **HbA1c** = haemoglobin A1c; **HCP** = healthcare professional; **LVA** = lateral vertebral assessment; **MRI** = magnetic resonance imaging; **PBS** = Pharmaceutical Benefits Scheme; **PCOS** = polycystic ovary syndrome; **PDN** = painful diabetic neuropathy; **RCPCH** = The Royal College of Paediatrics and Child Health; **SBE** = standard Base Excess; **SCS** = spinal cord stimulation; **SGLT2i** = sodium-glucose co-transporter-2 inhibitors; **T2DM** = type 2 diabetes mellitus; **TGA** = Therapeutic Goods Administration; **VFA** = vertebral fracture assessment; **WHO** = World Health Organisation.

Welcome to the 9th issue of Endocrinology Practice Review.

This Review covers news and issues relevant to clinical practice in endocrinology. It will bring you the latest updates, both locally and from around the globe, in relation to topics such as new and updated treatment guidelines, changes to medicines reimbursement and licensing, educational, professional body news, and more. Finally, on the back cover, you will find our COVID-19 resources and a summary of upcoming local and international educational opportunities, including workshops, webinars, and conferences.

We hope you enjoy this Research Review publication and look forward to hearing your comments and feedback.

Kind Regards,

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Clinical Practice

Updated guidance on using HbA1c to diagnose diabetes mellitus

The ADS has updated its position statement on the use of HbA1c for diagnosing diabetes, initially published in July 2015, with revisions made in May 2023. HbA1c for diabetes diagnosis offers advantages over traditional blood glucose measurements, addressing practical issues. However, it is essential to recognise the limitations of this test. HCPs should always consider the possibility of conditions that might affect the accuracy of the test, even though these are uncommon in Australia. Here are the key implementation recommendations:

- **Risk assessment:** Consider HbA1c testing in individuals at high risk for diabetes, such as those with an AUSDRISK score >12, pre-existing high-risk conditions, or belonging to high-risk ethnic groups.
- **Symptoms and diagnosis:** If a patient at low risk presents with one or more diabetes symptoms, diagnose diabetes using blood glucose measurements.
- **Confirmation of diagnosis:** Patients showing symptoms suggestive of diabetes should have their diagnosis confirmed through blood glucose measurement.
- **HbA1c interpretation:** An HbA1c result below 6.5% indicates that the patient does not have diabetes. In cases where the test is performed on a high-risk patient, it should be repeated after 12 months.
- **Consider other conditions:** Be aware of medical conditions that may interfere with the HbA1c test, although these are rare in most Australian communities.

The criteria for diagnosing diabetes are as follows:

- HbA1c ≥6.5% (48 mmol/mol)
- Fasting glucose ≥7.0 mmol/L
- Random glucose ≥11.1 mmol/L

On a 75 g oral glucose tolerance test: fasting glucose ≥7.0 mmol/L or 2 hr glucose ≥11.1 mmol/L

In asymptomatic. Patients, the diagnosis should be confirmed by repeating the test. An abnormal result on two different diagnostic tests is also considered acceptable for diagnosis.

These recommendations aim to provide a cost-effective, efficient, and straightforward approach to early type 2 diabetes mellitus (T2DM) diagnosis while accounting for test limitations and potential interfering conditions.

https://tinyurl.com/3yt3zf8t

Australian T2DM glycaemic management algorithm

The blood glucose management algorithm for T2DM is a comprehensive guide that evaluates the risks, benefits, and costs associated with various available therapies while providing a tailored approach to incorporate both traditional and newer treatment agents. Treatment plans should be individualised, starting with selecting appropriate blood glucose and HbA1c targets, considering life expectancy and patient preference. Recent additions to the array of available therapies have expanded the options for blood glucose control and added complexity to the clinical pathway for diabetes management. The Position Statement and treatment algorithm developed by the ADS have been updated to reflect the latest evidence from randomised clinical trial data.

The current recommendations include adding an SGLT2 inhibitor (or glucagon-like peptide 1 receptor agonist (GLP-1RA) if SGLT2 inhibitors are not well-tolerated or contraindicated) to the treatment regimen for adults with T2DM who also have cardiovascular disease, multiple cardiovascular risk factors, and/or kidney disease. Metformin is conditionally recommended as the first-line monotherapy for adults with T2DM. Additionally, DPP-4 inhibitors as an adjunct to other glucose-lowering medications are conditionally recommended. Notably, the statement advises against sulphonylureas as the initial choice for combination therapy with metformin due to the increased risk of severe hypoglycaemia.

https://tinyurl.com/yydafaj6

Periprocedural DKA with SGLT2i use

The ADS, in collaboration with the ADEA and the ANZCA, has updated its guidelines regarding periprocedural diabetic ketoacidosis (DKA) associated with the use of sodium-glucose co-transporter-2 inhibitors (SGLT2i) in individuals with diabetes. Several risk factors can increase the likelihood of SGLT2i-associated DKA, including fasting, restrictive dietary practices (especially low carbohydrate intake), bowel preparation, surgery, dehydration, and concurrent illnesses such as infections. The guidelines strongly recommend blood ketone testing for DKA detection and monitoring, as urine ketone testing may not be reliable in these cases.

Patients with diabetes starting SGLT2is should be educated about the DKA risk related to medical procedures. Preoperatively, SGLT2is should be stopped for at least three days, including two days before and on the procedure day for hospitalisations. Other glucose-lowering meds should be adjusted as needed. On admission, monitor blood glucose and ketone levels, proceeding if the SGLT2i is stopped for three days and ketones <1.7 mmol/L; otherwise, action depends on factors including HbA1c (>9%). For ketone levels >1.0 mmol/L, assess standard Base Excess, and in non-critical care settings, engage the medical emergency team or intensive care unit for management, focusing on rehydration, intravenous insulin (with glucose if <15 mmol/l), and hourly monitoring of blood metrics. Post-procedure, SGLT2is can be recommenced when normal oral intake resumes; consider a 24-hour delay weighing against potential hyperglycaemia. Provide written post-procedure advice for patients to seek medical help if unwell within a week.

These guidelines aim to minimise SGLT2i-associated DKA risk during periprocedural periods and ensure safe diabetes patient management. Knowing these recommendations will enable HCPs to deliver optimal care, accounting for individual circumstances and risks.

https://tinyurl.com/yymjdecm

Claim CPD/CME points Click here for more info.

Standard DXA report: 2023 minimum requirements

A position statement prepared by the ESA, in collaboration with the AANMS and ANZBMS, outlines the minimum requirements for a standard dual-energy X-ray absorptiometry (DXA) report. These elements are essential for patient management and ensuring that HCPs can make informed decisions regarding treatment and follow-up. The following information should be included:

- **Patient and scan details:** Demographics, test indications, and machine specifics (including the manufacturer, scanner model, and software version).
- **Bone density results:** Sites scanned, bone mineral density (BMD) in g/cm², T-scores/Z-scores, and WHO classification. For postmenopausal females and men aged 50 and over, the report should classify BMD results according to WHO guidelines.
- **Fracture risk:** Factors and absolute risk estimation. When applicable, adjustments to the FRAX estimate with the Trabecular Bone Score should also be mentioned.
- **Optional DXA report items:** Recommendations for future studies, further tests, and intervention guidelines.
- **Lateral vertebral assessment (LVA)/vertebral fracture assessment (VFA) report:** If an LVA or VFA is performed alongside DXA of the spine and hips, the report should comment on vertebral deformities and whether they are consistent with vertebral fractures. It should also mention any unexplained vertebral or extra-vertebral pathology.
- **Follow-up DXA report:** In follow-up reports, details should include the indication for comparing the current and previous baseline studies. The significance of changes in BMD between the current and prior studies should be discussed, considering the precision of the laboratory. If applicable, the report should comment on comparisons with previous outside studies, including the DXA model used for those studies and any limitations of the comparison.

The Council of the ESA has endorsed this Position Statement.

https://tinyurl.com/4a8nvrb3

Guideline for assessing and managing polycystic ovary syndrome

The 2023 International Evidence-based Guideline for the Assessment and Management of Polycystic Ovary Syndrome (PCOS) offers comprehensive recommendations to guide clinicians and empower women with PCOS based on the best available evidence, multidisciplinary expertise, and consumer preferences. This guideline builds upon the 2018 International PCOS Guideline and includes updates to enhance the accuracy of diagnosis and improve patient care. Key recommendations include using the 2018 International Evidence-based Guideline criteria for diagnosis, incorporating anti-Müllerian hormone levels as an alternative to ultrasound in adults, and simplifying the diagnostic process when hyperandrogenism and irregular menstrual cycles are present. Insulin resistance is also recognised as a crucial feature of PCOS.

PCOS management should address various aspects, including reproductive, metabolic, cardiovascular, dermatologic, sleep, and psychological features. A lifelong health plan is recommended, emphasising a healthy lifestyle, weight gain prevention, fertility optimisation, and the management of clinical features such as metabolic risk factors, diabetes, cardiovascular disease, and sleep disorders.

The guideline highlights the increased risk of depression and anxiety in women with PCOS, emphasising the need for screening, assessment, and therapy as necessary. It also calls for greater awareness of psychological features, eating disorders, and their impact on body image and quality of life.

Patient dissatisfaction with PCOS diagnosis and care is prevalent, highlighting the need for improved education and awareness for women and HCPs. Shared decision-making and self-empowerment are fundamental, and integrated models of care should be collaboratively developed, funded, and evaluated.

A strong focus on a supported healthy lifestyle remains crucial for individuals with PCOS, with attention to overall health, prevention of weight gain, and effective weight management. The guideline recommends pharmacological treatments based on specific clinical indications, including combined oral contraceptive pills, metformin, mechanical laser therapy, and anti-androgens.

For infertility therapy, letrozole is recommended as the preferred first-line treatment, with clomiphene in combination with metformin as an option. In vitro fertilisation may be considered third-line therapy, with a preference for single embryo transfer.

Overall, the evidence in PCOS management is generally of low to moderate quality, underscoring the need for increased research, education, funding, and models of care to address this common but often neglected condition. The guideline aims to facilitate consistent clinical practice and provide evidence-based recommendations to improve individuals' experience and health outcomes with PCOS.

https://tinyurl.com/cctahwna

National UK guidelines for managing paediatric craniopharyngioma

Craniopharyngiomas, though rare, account for up to 80% of tumours in the hypothalamic-pituitary region in childhood. These benign tumours close to critical areas like the visual pathways, hypothalamus, and pituitary gland pose long-term neuroendocrine challenges despite high overall survival rates. Variability in treatment approaches among centres prompted the development of evidence-based guidelines for managing these tumours in children and young people in the UK.

The guidelines, crafted by the Guideline Development Group in collaboration with organisations like the CCLG in the UK and the BSPED, draw from 239 primary studies and seven international guidelines. They underwent rigorous validation, including Delphi consensus rounds and expert review, and were endorsed by RCPCH.

For diagnosis in individuals <19 years, the guidelines recommend routine MRI with specialised pituitary views. Computed tomography scans may be necessary in cases with diagnostic uncertainty. Grading hypothalamic involvement through preoperative MRI informs hypothalamic-sparing surgery, minimising risks of complications such as adipsia and obesity.

Given that most affected children experience hypothalamic-pituitary deficits, comprehensive endocrinology testing is advised to assess adrenal status and identify concurrent conditions. Visual acuity and neurocognitive assessments are vital, with a histological diagnosis recommended when feasible.

In terms of treatment, complete or subtotal resection is favoured over conservative management, except in cases with clear hypothalamic involvement. Subtotal resection can be followed by adjuvant radiotherapy without added long-term risks, especially in hypothalamic-involved tumours.

The guidelines recommend perioperative neuroprotection with dexamethasone and stress doses of hydrocortisone for those not receiving dexamethasone. Clinicians should be alert to potential postoperative complications like central diabetes insipidus and hyponatremia.

Regular MRI surveillance, visual acuity testing post-surgery, lifelong endocrine follow-up, and transition to adult neuroendocrine services are essential. Growth hormone deficiency can be treated with recombinant human growth hormone without increasing the risk of tumour progression.

Recurrence management remains challenging, with no high-quality evidence supporting specific strategies. Options include further surgery, cyst drainage, and radiotherapy.

These guidelines emphasise the need for multidisciplinary care and access to national expertise in managing craniopharyngiomas in children and young people. Gaps in evidence highlight the importance of ongoing research to refine treatment strategies for this rare but impactful condition.

https://tinyurl.com/2p9z3w7k

Regulatory News

Shortage of somatropin products

Novo Nordisk Pharmaceuticals has alerted the Therapeutic Goods Administration (TGA) about a global shortage of their somatropin products Norditropin® FlexPro® 5 mg, 10 mg, and 15 mg, lasting until December 31, 2023, due to manufacturing issues. Further, Ipsen has discontinued their somatropin product NutropinAq,® advising clinicians to transition patients to alternatives.

The TGA urges healthcare providers not to prescribe NutropinAq for those affected by the Norditropin FlexPro shortage. Genotropin®, Omnitrope®, Saizen®, and SciTropin A™ somatropin products remain available, with potential supply effects if not prescribed thoughtfully. Long-acting growth hormone somatrogon (NgenlaTM) is also accessible.

Limited emergency stock of Norditropin FlexPro is reserved for the most critical cases where alternatives are unavailable. Novo Nordisk Customer Care Centre should be contacted to access this emergency stock. Due to limited PBS-subsidised options, Norditropin FlexPro and Genotropin GoQuick stocks should prioritise adult patients. Genotropin MiniQuick should be conserved for preservative-free paediatric formulations. Prescribing under Regulation 49 (formerly Regulation 24) should be avoided unless absolutely necessary to ensure fair distribution.

Health professionals should contact pharmaceutical companies for availability guidance when prescribing somatropin. Prescribers should visit the PBS website for eligibility requirements and information on somatropin and somatrogon products.

https://tinyurl.com/yc45dnd4

60-day prescriptions of PBS medicines

Patients can now receive twice the medication for the cost of a single prescription with the 60-day prescriptions for nearly 100 common medicines listed on the Pharmaceutical Benefits Scheme (PBS). This includes hormonal replacement, modulation therapy, and drugs for diabetes, osteoporosis, endometriosis, and endometrial cancer.

To qualify, patients must be:

- living with an ongoing health condition
- assessed by their prescriber to be stable on their current medicine/medicines
- have discussed with their prescriber and obtained a new prescription for a 60-day quantity of medicine per dispensing.

The Department of Health is finalising the order of medicines that will be available in Stages 2 and 3.

https://tinyurl.com/3hp7bbcn

News in Brief

Precision medication in paediatric endocrine disorders

In contemporary healthcare, the traditional 'one-size-fits-all' approach is outdated. Precision medicine is now the norm, tailoring treatment to individual patients through evolving technologies and care methods. Professor Martin Savage and fellow experts delve into implementing precision medicine in managing paediatric endocrine disorders in a video series of informative interviews.

https://tinyurl.com/2s4723dy

Long-term painful diabetic neuropathy relief with high-frequency spinal cord stimulation

The SENZA-PDN study evaluated the long-term effectiveness of high-frequency (10 kHz) spinal cord stimulation (SCS) for refractory painful diabetic neuropathy (PDN). In a 24-month follow-up of 142 patients, 10 kHz SCS reduced pain by a mean of 79.9%, with 90.1% experiencing ≥50% pain relief. Quality of life and sleep significantly improved, and 65.7% showed clinically meaningful neurological improvement. Only 3.2% of SCS systems were removed due to infection. These findings establish 10 kHz SCS as a safe and highly effective therapy for PDN, providing long-lasting pain relief and improved outcomes in quality of life and neurological function.

https://tinyurl.com/2vep6rnv

Factors associated with circulating sex hormones in men

Various factors influence testosterone levels in men, impacting the interpretation of testosterone measurements. This study analysed data from over 21,000 men and found that testosterone levels remained relatively stable between 17–70 years but decreased significantly in men older than 70 years. Testosterone levels were lower in men with higher body mass index (BMI), those who were married, engaged in minimal vigorous physical activity, were former smokers or had health conditions like hypertension, cardiovascular disease, cancer, or diabetes. Sex hormone-binding globulin and luteinising hormone levels were also associated with age and BMI. These findings emphasise the importance of considering multiple factors when interpreting testosterone measurements, especially in older men and those with specific health conditions.

https://tinyurl.com/3uu387xd

Benefits of low-carb diets for gestational diabetes

Low-carbohydrate diets during pregnancy might reduce glycaemia in gestational diabetes but do not show significant overall differences in outcomes compared to flexible carbohydrate diets, say experts. While low-carb diets may decrease glycemia in gestational diabetes, adherence to recommended dietary allowances of carbohydrates is essential for foetal development. Further research is needed to understand the quality of carbohydrates, not just the quantity. Flexibility in carbohydrate intake contributes to better outcomes for both mothers and foetuses. The affordability of nutritional patterns is essential for lower-income families, and research should address these issues.

https://tinyurl.com/yckxexns

COVID-19 Resources

Australian Diabetes Educators Association

International Diabetes Federation

American Diabetes Association

Conferences, Workshops, and CPD

Please click on the links below for upcoming local and international endocrinology meetings, workshops, and CPD.

Australian Diabetes Society – Events

Endocrine Society of Australia – Meetings

Society for Endocrinology – World Events

Research Review Publications

Diabetes Research Review with Dr Mathis Grossmann

Endocrinology Research Review with Prof Cres Eastman, Prof Duncan Topliss, and Clinical Assoc Prof Michael Hooper

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