Diabetes Mellitus and Glucose Metabolism

TYPE 2 DIABETES MELLITUS

Approach to a Potential Liver Transplant Candidate with Insulin Antibody-Mediated Severe Insulin Resistance

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SUN-685

Introduction: Insulin antibody (IA)-mediated insulin resistance is a rare autoimmune condition resulting in uncontrolled hyperglycemia. High titers of IA are associated with increased mortality secondary to severe insulin resistance and labile blood sugars. There is a paucity of standardized treatment for these patients. Although there have been reported cases of success with immunosuppressants, none of these cases involved patients with liver cirrhosis. We present a case of IA-mediated severe insulin resistance which resulted in uncontrolled hyperglycemia and ultimately delayed liver transplantation.

Clinical Case: A 61-year-old male with IA-positive type 2 diabetes, decompensated hepatitis B and NASH cirrhosis presented with several episodes of diabetic ketoacidosis (DKA) and worsening insulin resistance. His liver transplant listing had been placed on hold until glycemic control is achieved. The patient was diagnosed with type 2 diabetes mellitus in 1998. He has no prior autoimmune history. His disease was controlled on Levemir 100 units daily until March 2019 when he presented with his first episode of DKA. He subsequently required 200 units of insulin degludec daily and U-500 insulin 200 units with meals. The patient was readmitted to our hospital in August 2019 for a variceal bleed. His hospital course was complicated by a second occurrence of DKA requiring 100-150 units/hour on an insulin drip for resolution. Labs were significant for HbA1c 8.7% and IA >625 uU/mL (negative if <5.0 uU/mL). He required increasing amounts of basal and prandial insulin after discharge. The patient was again admitted within two months for abdominal pain concerning for spontaneous bacterial peritonitis, which was complicated by his third episode of DKA. Glucoses remained uncontrolled in the range of 170 to 300 mg/dL despite high insulin doses upon discharge. Metformin was contraindicated due to episode of lactic acidosis in the setting of his cirrhosis and concern for repeated episodes of DKA prevented use of SGLT-2 inhibitors. Extensive multidisciplinary discussions led to the decision for an upcoming trial of mycophenolate mofetil followed by plasmapheresis. The goal is to improve glycemic control while also minimizing infection risk to ultimately list him for a liver transplant.

Conclusion: This patient highlights a major therapeutic challenge related to uncontrolled hyperglycemia and insulin resistance from anti-insulin antibodies in a cirrhotic patient. This can place patients at high risk for infection, poor wound healing and most importantly prohibit liver transplantation. Immunosuppressant therapy and plasmapheresis may drastically lower insulin antibodies and improve glycemic control, however, it will increase the risk of infection.

Pediatric Endocrinology

PEDIATRIC ENDOCRINE CASE REPORTS I

A Rare Endocrine Cause of Pseudotumor Cerebri

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SAT-074

Introduction: Idiopathic intracranial hypertension, also known as pseudotumor cerebri, can be associated with various medications, obesity, systemic conditions, and inherited disorders. To the best of our knowledge, this is the second pediatric case of a GnRH agonist reported to cause pseudotumor cerebri.

Case presentation: Our patient, a 12 5/12-year-old transgender male (birth-assigned female), started depot leuprolide acetate to suppress puberty at 11 10/12 years of age (early Tanner 2 breast development). He received Lupron Depot® 7.5 mg intramuscularly for 4 doses, then 22.5 mg intramuscular every 13 weeks thereafter. Five months after his first injection, a routine eye examination revealed bilateral papilledema and enlarged blind spots, which was confirmed by a Pediatric Ophthalmologist. He was asymptomatic. There was no marked weight gain in the previous year with a BMI of 24.5 kg/m2 (+1.85 SD). His blood pressure was 110–123 mmHg systolic and 71–85 mmHg diastolic. Neurological examination was normal. CT head was normal. Cranial MRI showed slight flattening of the optic nerve heads, mild engorgement of optic nerve sheath fluid, and no space-occupying mass. Sedated lumbar puncture revealed elevated opening pressure of 31 cm H_2O. CSF analysis, including pathology, was benign. He was managed with acetazolamide. Based on these findings, he was diagnosed with pseudotumor cerebri secondary to the GnRH agonist. Follow-up by the Ophthalmologist one month after starting acetazolamide showed significant improvement of the papilledema.

Conclusion: This case highlights that patients on GnRH agonist therapy are at risk for pseudotumor cerebri, and we recommend periodic ophthalmologic surveillance.

Cardiovascular Endocrinology

HYPERTRIGLYCERIDEMIA; INFLAMMATION AND MUSCLE METABOLISM IN OBESITY AND WEIGHT LOSS II

Real World Evidence of Successful Weight Management for the Obese Population: Complete Reversal of Obesity Related Metabolic Co-Morbidities and Weight Loss in Patients Attending a Multidisciplinary Weight Management Clinic in Australia.

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SUN-543

Over 2.5 billion people worldwide are overweight or obese. Multidisciplinary weight management interventions have

evolved to address the complexity of weight loss for those with one or more chronic diseases, and the trend of weight regain. The aim of these interventions is to encourage sustainable lifestyle changes, resulting in weight loss and weight maintenance and improvements in comorbidities. While some prospective clinical trials have demonstrated efficacy, results are often not reported by real life practices. The aim of this study was to evaluate the effectiveness of a Sydney based multidisciplinary weight management clinic with endocrinology, dietetics, exercise physiology, psychology, and bariatric surgical domains. All patients who attended the clinic for weight loss purposes between March 2017 and April 2019 were included (n=220). A retrospective chart review was conducted. Patient data on weight, BMI, waist circumference, body composition measurements, and selected blood test results and co-morbidities were analysed. All patient therapy included endocrinological input for co-morbidity identification and management, lifestyle intervention (dietetic and exercise physiology input) with optional adjunct pharmacotherapy or psychological counselling. Of the 220 cohort, 20 of the patients had sleeve gastrectomy.
Patient retention in the clinic after the first consultation was 85% (n=186), a high rate within the weight management community. 59% of patients achieved a minimum of 5% total body weight loss, including 18% who achieved greater than 10% total body weight loss. Additionally, 31% of patients lost enough weight to decrease their BMI class by up to 2 or more classes. Of the gastric sleeve cohort average excess body weight loss was 32kg (21-56kg) enhanced by multidisciplinary care in the lead up to surgery. Across the cohort some patients completely reversed co-morbidities; including dyslipidaemia (n=1), hypertension (n=3), NAFLD (n=1), pre-diabetes (n=8) and type 2 diabetes (n=3), OSA (n=1). These results demonstrate that obesity is a chronic condition that can be successfully managed. We have demonstrated significant durable weight loss and improvement in metabolic co-morbidities with holistic coordinated care. Future directions include translating this model of care into standard practice in Australia and other countries where obesity to date not received the same coordinated approach as other chronic conditions.

Diabetes Mellitus and Glucose Metabolism

DIABETES TECHNOLOGY

The Fast-Evolving Connected Diabetes Care Landscape: Transforming Diabetes Care with Telehealth and Technology

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SAT-636

The Fast-Evolving Connected Diabetes Care Landscape: Transforming Diabetes Care with Telehealth and Technology

Background and Aims

Recent years have brought about a new form of "connected diabetes care," defined as digital diabetes management systems based around (1) smartphone apps, (2) devices with built-in connectivity, and (3) remote human and automated coaching and support. Given their potential to help improve health outcomes, the rapid pace of innovation, and the dearth of information about them to guide patients, providers, and payers, we provide an update on the landscape of and trends in connected diabetes care offerings.

Methods

Prominent connected diabetes care providers that have published results are categorized and characterized. Similarities and differences are identified and the state of available evidence is evaluated.

Results

Connected diabetes care offerings were analyzed for items including: health conditions managed, care team composition, connected medical devices, and evidence. We expect these players will further expand offerings across chronic conditions, strive to integrate more deeply with the traditional healthcare system, deploy greater automation to promote scalability, and find clever ways to promote and support the use of continuous glucose monitoring in type 2 diabetes. Future evidence generation for this field should have more standardized methodology.

Conclusions

The field of connected diabetes care has tremendous potential to improve outcomes, but it is in its infancy in terms of awareness, uptake, and effectiveness. Further, questions regarding offerings' abilities to support most people with diabetes sustainably remain. However, existing evidence is sufficient to support further exploration and refinement of the model as the next step in team-based diabetes care.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY

Treatment of Hyperprolactinemia with Ropinirole: An Open-Label Dose Escalation Study

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MON-282

Purpose

Treatment of hyperprolactinemia and prolactinomas with ergoline dopamine agonists (DAs) can be complicated by intolerance and resistance. Ropinirole (ROP) is a low cost selective D2/D3 receptor non-ergot DA, approved for treatment of Parkinson's disease and Restless Leg Syndrome, that has been shown to acutely lower prolactin levels (PRL). This study investigated the efficacy and tolerability of long-term ROP therapy in patients with hyperprolactinemia.

Methods & Results

Ten healthy women (21-45 yrs) with hyperprolactinemia were treated with ROP (0.25-6.0mg/d) for 6 months in an open-label dose escalation study. Clinical and biochemical status was assessed monthly and ROP doses were up-titrated to achieve normal PRL levels, restore menses, and eliminate galactorrhea. Two subjects had macroprolactinomas, 7 had microprolactinomas, and 1 had idiopathic hyperprolactinemia. 8/10 had previously been