Abstracts from ABCD Diabetes Update 2025

29th to 31st January 2025, Holywell Park Conference Centre, Loughborough University Science and Enterprise Park, Loughborough, UK

Winning abstracts below. The remaining abstracts are online @www.bjd-abcd.com

Br J Diabetes 2025;**25(1)**:55-58
https://doi.org/10.15277/bjd.2025.485

Serial Number: 51
Submission ID: 18124
Category: Chronic kidney disease and diabetes

Management of worsening diabetic nephropathy in pregnancy

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A 34-year-old Ghanaian woman with a complex obstetric history, including seven miscarriages, recurrent pre-eclampsia, placental abruption, a neonatal death at 18 months and a baby with a neural tube defect, presented 11 weeks into her 11th pregnancy. Her medical history also included hypertension, type 2 diabetes and chronic kidney disease (CKD) secondary to diabetes and hypertension. At her booking appointment, her blood pressure was poorly controlled at 187/90 mmHg, her HbA_{1c} was elevated at 76 mmol/mol, creatinine was 258 nmol/L, estimated glomerular filtration rate (eGFR) was 18 ml/min, and her urinary protein-to-creatinine ratio (UPCR) was 579.31 mg/mmol.

During her initial consultation, the team discussed the risks posed to both mother and baby by her poorly controlled diabetes, hypertension and CKD. These included risks of stillbirth, accelerated decline in renal function requiring dialysis, and escalated hypertension with the potential for an intracranial bleed. The option of a termination was offered, but the patient chose to proceed with the pregnancy. She was managed in a multidisciplinary team (MDT) clinic, involving a diabetologist, renal physician, obstetrician, midwife and diabetes specialist nurse (DSN). Her blood pressure was optimised using pregnancy-safe antihypertensive medications, and her diabetes was managed with insulin. She was also started on aspirin to reduce the risk of pre-eclampsia, a renal-appropriate dose of venous thromboembolism (VTE) prophylaxis and erythropoietin (EPO) injections. Although she did not require dialysis during pregnancy, she developed pre-eclampsia at 32 weeks: serial growth scans demonstrated intrauterine growth restriction (IUGR) and polyhydramnios.

An MDT-recommended plan for early delivery by Caesarean section at 34 weeks, along with tubal ligation and possible dialysis around delivery, was discussed. Despite detailed counselling, the patient declined an early delivery. She went into spontaneous labour at 33 weeks and 1 day, with the baby requiring neonatal intensive care for respiratory distress but ultimately making an uneventful recovery.

Following delivery, the patient required further blood pressure optimisation. Her eGFR had dropped further to 8 ml/min, prompting a referral to the renal clinic. Four months postpartum, she presented with acute pulmonary oedema and was subsequently started on dialysis.

Conclusion: In England, chronic kidney disease affects an estimated 15,000 to 20,000 pregnancies each year, a number that is expected to rise. CKD significantly increases the risk of adverse outcomes in pregnancy for both mother and baby. Managing pregnancy in women with CKD requires a sensitive, multidisciplinary approach, shared decision-making, close monitoring in a supportive environment and effective pre-conception counselling.

Serial Number: 50
Submission ID: 18123
Category: Diabetes management in people with disabilities and learning difficulties

Admission avoidance: an MDT effort

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A 48-year-old male with a background of type 1 diabetes (T1DM) and Down syndrome presented with severe diabetic ketoacidosis (DKA) in 2016. He lived in supported accommodation. Over the next two years he would present in a similar manner more than 12 times, including one admission to intensive care requiring intubation and inotropic support. During this period several attempts were made to reduce his admissions to hospital with DKA. Initially his insulin regime was adjusted from a mixed twice-daily insulin to a basal-bolus regime with insulin degludec to provide long-acting basal cover. He was further investigated for a trigger of ketoacidosis with an MRI scan of the small bowel given previous episodes of intussusception; the findings were unremarkable. Despite this, he had further admissions with DKA.

At this point a decision had to be made whether his current carers had adequate training to support someone with T1DM. A multidisciplinary team (MDT) was formed with the patient's brother and a learning disabilities nurse along with carers and the

diabetes team. It was felt strongly that moving him from his familiar environment to a nursing home would not be beneficial, as the insulin adjustment or titration would not be undertaken by the nurses in the home and therefore further admissions would not be prevented. He would also be psychologically impacted by this move, given his familiarity with his current accommodation.

Following this outcome a wider community MDT was set up. This included the patient's brother, the learning disabilities nurse, the supported accommodation manager, the inpatient diabetes team (doctors, nurses and dieticians), a representative from the care commissioning group, the patient's GP, the district nurses and the community diabetes nurses. Together the team was able to create meals plans based on the patient's favourite/ most eaten meals and snacks, the carbohydrate content and insulin requirements. They gave target glucose and training on interpreting ketone readings as well as sick day rules; and recognising and treating hypoglycaemia. His carers and district nurses were given direct contact to the community and secondary care diabetes nurses for advice in real time. A continuous glucose monitoring device was tried but was disliked by the patient. By implementing a multi-disciplinary plan and placing the patient at the centre of care, as well as working as a team, a further admission was prevented for two years.

Serial Number: 68
Submission ID: 18196
Category: Enteral and parenteral feeding and diabetes management

Utilisation of hybrid closed-loop pump technology in managing glycaemic control in challenging inpatient cases on enteral feeding and steroid therapy

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Background: Enteral feeding is commonly employed in hospitals to provide nutritional support, particularly in patients with diabetes. However, managing glycaemic control in individuals receiving enteral nutrition can be difficult, especially when combined with high-dose steroid therapy.

Case study: A 48-year-old male patient was admitted for a cranioplasty following a previous craniectomy for an intracranial haemorrhage (ICH) in 2021. The patient had a prolonged hospital stay due to post-operative complications, including perishunt bleeding. On admission, he was receiving metformin, dapagliflozin and gliclazide for diabetes management. Post-operatively, the patient was placed on continuous enteral feeding and started on high-dose prednisolone (20 mg daily). Despite these interventions, his blood glucose levels remained persistently elevated, necessitating the initiation of a Variable Rate Intravenous Insulin Infusion (VRIII). Due to his slow recovery and continued steroid treatment, the tapering of prednisolone was prolonged. After two weeks of VRIII, the patient's glucose levels stabilized. He was then transitioned to subcutaneous pre-mixed insulin administered twice daily, timed to coincide with the start and midpoint of his enteral feed. At this point, he was still receiving 15 mg of prednisolone daily. Over the subsequent 4–6 weeks, his diabetes management was optimized through titration of the pre-mixed insulin dose, an increase to three times daily dosing, the introduction of Novorapid insulin as needed, and the reintroduction of metformin. As the patient's oral intake improved, his enteral feeding was gradually reduced. However, despite these adjustments, blood glucose levels remained poorly controlled, prompting the team to transition him to VRIII once again. Following a multidisciplinary discussion, it was decided to initiate a hybrid closed-loop (HCL) insulin pump system (CAMPAPS HX, using the Dana RS Insulin Pump and Dexcom G6 glucose sensor). This system significantly improved glycaemic control, reducing blood glucose excursions. Unfortunately, the patient required a second surgery, and HCL therapy was discontinued in favour of resuming VRIII.

Conclusion: This case highlights the potential role of HCL insulin pump technology in managing challenging glycaemic control in patients receiving enteral feeding and high-dose steroids during inpatient care. It underscores the importance of personalized, adaptive insulin therapy in complex clinical situations.

Serial Number: 53
Submission ID: 18126
Category: Management of hyperglycaemia and steroid (glucocorticoid) therapy

Steroid-induced diabetic ketoacidosis in a patient treated for COVID-19 pneumonitis.

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Background: Corticosteroid treatment is known to potentially cause hyperglycaemia, affecting 46-68% of individuals who receive steroid therapy. This hyperglycaemic effect can worsen pre-existing diabetes and may lead to the development of new diabetes in 34.3-56% of patients receiving steroid treatment. However, steroid-induced diabetic ketoacidosis (DKA) is rare, with only a few cases reported to date. We present the case of a 46-year-old obese male of African descent with no prior history of diabetes mellitus who developed DKA after starting corticosteroids for COVID-19 pneumonitis.
Case presentation: A 46-year-old man was admitted to the hospital for COVID-19 pneumonitis. After receiving treatment, he was discharged with a plan to complete a 10-day course of dexamethasone. About a month later, he returned to hospital with symptoms of polyuria, polydipsia, fatigue and an unintentional weight loss of 11 kg, which began shortly after his discharge while he was still on steroids. He has no significant medical history but has a strong family history of type 2 diabetes: both his mother and sister have diabetes. On examination, his blood pressure was 141/92 mmHg, his heart rate was 111 bpm, he was afebrile and his body mass index (BMI) was 32 kg/m^2. Initial laboratory tests confirmed a diagnosis of diabetic ketoacidosis (capillary blood glucose [CBG] 29.6

mmol/L, ketones 4.6 mmol/L, pH 7.29). His HbA_{1c} on admission was 142 mmol/mol. Although no previous HbA_{1c} records were available, a glucose level from a blood gas test conducted two months earlier was noted to be 5.8 mmol/L.

He was treated with intravenous insulin using the hospital's DKA protocol. After his DKA was resolved, he was switched to a basal-bolus insulin regimen and discharged with this plan. Tests for diabetes autoantibodies were negative. Following a diabetes MDT discussion, metformin and Ozempic were added to his insulin. His HbA_{1c} gradually improved to 42 mmol/mol, and his insulin requirements significantly decreased. He stopped using insulin about 24 months after diagnosis.

Conclusion: Our patient developed DKA after receiving dexamethasone for COVID-19 pneumonitis despite having no prior diagnosis of diabetes. The timing of the steroid treatment and the absence of other triggers suggest that the steroids likely caused the DKA. Negative autoantibodies, along with obesity, ethnic background and initial DKA presentation, suggest a diagnosis of steroid-induced ketosis-prone diabetes mellitus. Steroid-induced diabetic ketoacidosis (DKA) may be more common than previously reported. Individuals with obesity and other metabolic risk factors requiring steroids should be closely monitored for DKA symptoms.

Serial Number: 63
Submission ID: 18191
Category: Closed loops

Complexities of managing severe complications in type 1 diabetes: a case of diabetic amyotrophy, gastroparesis and treatment-induced neuropathy.

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Case report: This case presents a 26-year-old woman with long-standing type 1 diabetes (T1DM), diagnosed at the age of 4, who developed multiple severe complications due to chronic suboptimal glycaemic control. Her history revealed an HbA_{1c} consistently above 100 mmol/mol for several years, contributing to diabetic peripheral neuropathy (DPN) and diabetic retinopathy. She was initially treated with a Medtronic 640 G insulin pump but discontinued it in 2021 due to safety concerns and poor blood sugar control. Unfortunately, the patient missed multiple follow-up appointments at her diabetes clinic during this period and had two admissions for diabetic ketoacidosis (DKA), highlighting the challenges in her diabetes management.

In July 2024, she was re-started on a Medtronic 780 G hybrid closed-loop (HCL) insulin pump. Shortly after initiating the pump, her glycaemic control improved dramatically, with HbA_{1c} reducing from 129 mmol/mol to 63 mmol/mol. However, this rapid improvement led to treatment-induced neuropathy (TIND), marked by exacerbation of her painful DPN and the development of diabetic amyotrophy. The latter was confirmed by electromyography (EMG), showing sensorimotor axonal-demyelinating polyneuropathy. Symptoms included severe burning pain and weakness in the lower limbs. She was treated with intravenous methylprednisolone (SoluMedrol), which led to partial symptom relief.

The patient also developed gastroparesis, evidenced by postprandial nausea, constipation, diarrhoea and significant weight loss (12 kg over five months). Gastroscopy confirmed delayed gastric emptying and substantial food residue, with the condition attributed to microvascular damage from chronic hyperglycaemia. She was referred to a dietitian for nutritional support and prescribed Ensure supplementation to address her malnutrition. Despite improvements in glycaemic control, with a Time in Range (TIR) of 61% and an HbA_{1c} of 63 mmol/mol, the patient remains at high risk due to her low body mass index (BMI) (15.4 kg/m^2) and ongoing gastroparesis. Pain management for her neuropathy, using amitriptyline and pregabalin, has also been difficult.

Conclusion: This case highlights the complexities of managing T1DM in a patient with severe complications such as diabetic amyotrophy, gastroparesis and peripheral neuropathy. It underscores the importance of regular clinic attendance and comprehensive foot examinations, which were notably missed during her period of non-compliance with follow-up appointments. Multidisciplinary care from endocrinology, neurology, gastroenterology and dietetics is essential in balancing glycaemic control with minimizing complications.

Serial Number: 67
Submission ID: 18195
Category: Managing diabetes in young adults

Challenges in managing a young pregnant woman with type A insulin resistance syndrome (TAIRS): a case report

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Case report: A 17-year-old Caucasian woman G1P0 presented to the antenatal diabetes clinic at 7 weeks' gestation with HbA_{1c} 51 mmol/mol, body mass index (BMI) 26.1 kg/m^2, acanthosis nigricans and abdominal hirsutism. She was diagnosed with diabetes mellitus at the age of 13 and initially managed as type 1 diabetes (T1DM). Her older brother and paternal grandmother had diabetes mellitus. Her pancreatic autoantibodies were negative, and C-peptide was 1175 pmol/L. Genetic analysis revealed type A insulin resistance (TAIRS) due to a heterozygous mutation in the insulin receptor (INSR missense variant, p.Met1180Lys). She was managed on metformin and Tresiba with continuous glucose monitoring under the paediatric diabetes and national severe insulin resistance services. Her past medical history included mild learning difficulty. At booking, mealtime Novorapid was added to Tresiba (12 units) and metformin. Initial insulin-to-carbohydrate ratio was 1unit:20g, maintaining satisfactory time-in-ranges and HbA_{1c} improved to 34 mmol/mol by 22 weeks.

However, bolus insulin requirements increased dramatically after 15 weeks' gestation and by 23+4 weeks reached Novorapid 240–400 units TDS plus Tresiba 28 units. This prompted admission for monitored administration and subsequent transfer to tertiary care for glycaemic optimisation and further management. Switching to Humalog variable rate intravenous insulin infusion resulted in hypoglycaemia, without features of placental insufficiency on ultrasound Doppler. Foetal growth scans showed an estimated weight at the 82nd percentile. Insulin IgG autoantibodies were 2 mg/L (0-5). She was subsequently stabilized on 2 units Humalog with meals. At 24+4 weeks, she had spontaneous rupture of membranes and delivered vaginally. She maintained euglycemia postpartum on her pre-pregnancy regimen. The infant was admitted to neonatal intensive care and discharged home three months later.

TAIRS is a rare disorder characterised by severe insulin resistance resulting from abnormalities in insulin receptor signalling. The physiological rise in insulin resistance during pregnancy, commonly seen from 20 weeks, appears to be augmented here, resulting in extremely high insulin requirements. The associations between hyperinsulinaemia and placental metabolism, angiogenesis and growth are complex, and the extreme hyperinsulinaemia may have contributed to her preterm labour. The marked disparity between Novorapid and Humalog doses near delivery may have represented a clinical marker for acute placental insufficiency despite normal placental tests rather than altered pharmacodynamics of different insulin analogues at the level of the mutant insulin receptor.

Conclusion: This report highlights the challenges in antenatal management in these complex cases and the importance of multidisciplinary collaboration between the patient, diabetologists and obstetricians, and reinforces the recognised relationship between falling insulin requirements in later pregnancy and placental dysfunction.