Abstracts from ABCD Conference

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The 2 winning posters were published in the December issue, the following are the remaining posters that were presented

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Abstract ID: 3489

An evaluation of alpelisib-induced hyperglycaemia prevention. A single tertiary oncology cohort retrospective study

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Introduction: Alpelisib is an alpha-selective phosphatidylinositol 3-kinase (PIK3) inhibitor used in conjunction with fulvestrant, which is a selective oestrogen receptor degrader, in adult patients with hormone receptor (HR)-positive, human epidermal growth factor receptor 2(HER2)-negative, PIKCA-mutated advanced or metastatic breast cancer. The PIKCA gene encodes a protein that mediates insulin signalling and cell growth. Hyperglycaemia is a common adverse effect of PI3K inhibitors. These agents impair insulin signalling in liver and skeletal muscle, leading to increased glycogen breakdown, decreased glucose uptake and a state of insulin resistance. Early detection and treatment are key to reduce the rate of alpelisib discontinuation due to hyperglycaemia.
Design: We reviewed all relevant published literature, guidelines, drug prescribing and clinical studies in order to develop a local protocol specifically to manage alpelisib-induced hyperglycaemia. A pathway was designed to enable the oncology team to manage early complications of alpelisib-induced hyperglycaemia. We present findings from the locally developed protocol, using a multidisciplinary approach in optimising care of patients treated with alpelisib.
Subjects and methods: Suitable patients identified for alpelisib/fulvestrant treatment were screened, risk assessed, counselled and monitored by an oncologist specialist physician associate. Hyperglycaemia treatment decisions were made using capillary blood glucose (CBG) measurements at each clinical appointment, according to the developed protocol and in consultation with a diabetes specialist.
Results: All seven women in this case series had HER-2 negative, PI3K-mutated locally advanced/metastatic breast cancer. The mean baseline HbA1c was 38.4mmol/mol, and the mean baseline CBG reading was 5.2mmol/L. Average body mass index (BMI) was 27.6kg/m^2. Four of the seven patients required insulin sensitizers, and none of the patients experienced a grade three hyperglycaemia (fasting glucose 13.9 to 27.8mmol/litre) or grade four hyperglycaemia (fasting glucose >27.8mmol/litre). Similarly to findings from the SOLAR-1 trial, there was a predicted rise in fasting CBG at day 14 from treatment initiation. Mean HbA1c at four weeks and three months rose to 46mmol/mol (pre-diabetes range) despite treatment with insulin sensitisers. Adherence and tolerance to alpelisib was not affected by hyperglycaemia. There were no adverse events requiring hospital admission reported with the use of this protocol.
Conclusion: Early detection and management of alpelisib-induced hyperglycaemia is essential. Implementation of the protocol with a multidisciplinary approach prevented adverse side effects associated with alpelisib-induced hyperglycaemia.

Abstract ID: 3462

Analysis of the relationship between laboratory HbA1c and GMI in young adults with diabetes

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Introduction: Glycated haemoglobin A1c (HbA1c) is a key glycaemic marker in diabetes management but it has limitations. The glucose management indicator (GMI), derived from continuous glucose monitoring (CGM), is used to reflect HbA1c. However, the concordance between laboratory HbA1c and GMI can vary across different populations. The purpose of this study was to analyse the relationship between laboratory HbA1c and GMI in young adults with diabetes.
Material and method: This was a retrospective observational study of 50 patients between the ages of 18 and 25 years. The relationship between 90-day CGM-derived GMI and laboratory HbA1c of the same period was examined. The association of GMI with time in range (TIR) was also analysed. Spearman correlation coefficient was used to analyse different correlations.
Results: Of the 50 individuals included in the analysis, mean(±SD) age was 23.5±1.9 years and 30 were females. Mean BMI was 27.6±4.4 kg/m^2 with 47 having type 1 diabetes (T1DM), two type 2 diabetes (T2DM) and one genetic diabetes. Almost all were Caucasians (n=49). The vast majority used Freestyle Libre 2 (n=47), with three individuals using Dexcom G6. Insulin treatment included multiple daily injections (n=32), insulin pumps (n=15) and closed loops (n=3).
The mean GMI over 90 days was 64.2±16.5 while laboratory HbA1c was 73.7±18.9mmol/mol. There was a positive correlation between GMI and HbA1c (r=0.834; p<0.001), with 10 individuals (20%) displaying a difference of >10 mmol/mol in values. In contrast, we found a negative correlation between HbA1c and TIR (r= -0.818; p<0.01). A stronger negative correlation was identified between GMI and TIR, with r=-0.985 (p<0.001).
Conclusion: HbA1c-GMI discordance appears significant in this small observational study of young adults with predominantly T1DM; a fifth of individuals exhibited a clinically important difference, which may affect the clinical management of these individuals.

Abstract ID: 3499

Case report: pancreatic adenocarcinoma with positive diabetes autoantibodies

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Background: Pancreatic ductal adenocarcinoma (PDAC) has a strong and complex association with diabetes. PDAC may present with positive diabetes autoantibodies, complicating diabetes classification.[1,2] In this context, we present a case report of a patient with PDAC who tested positive for anti-Glutamic Acid Decarboxylase (GAD) and Zinc-Transporter 8 (Znt8) antibodies.

Case presentation

A 69-year-old male was referred to the endocrinology clinic due to his deteriorating diabetic control and recent significant weight loss. He was diagnosed with diabetes at age 57, with an initial HbA1c of 49 mmol/mol. His body mass index (BMI) at the time of diagnosis was 33 kg/m^2. He was started on metformin, and his glycaemic control remained stable until late 2021 when his HbA1c increased from 57 to 72 mmol/mol, prompting the initiation of gliclazide therapy, followed by basal insulin a year later. There was no history of autoimmune disorders and no family history of diabetes.

Recent investigations revealed an HbA1c of 90 mmol/mol. Full blood count, urea and electrolytes, bone profile and thyroid function tests were all normal. His diabetes autoantibodies were positive for GAD (>2000 U/ml, reference range: 0–5) and ZnT8 (29 U/ml, reference range: 0–14), but normal for tyrosine phosphatase-related IA-2 antibody. These antibody tests were repeated at another lab, with similar results. His plasma non-fasting C-peptide was 329 pmol/l, indicating intermediate endogenous insulin secretion. His other autoimmune screening, including thyroid function tests, 9 am cortisol, coeliac and vitamin B12 levels, were within the normal reference range. Notably, the CA 19-9 tumour marker was markedly elevated at 865 U/ml (reference range < 27 U/ml). A CT scan revealed a 4.2 × 2.5 cm pancreatic tumour, and histology confirmed pancreatic adenocarcinoma. The patient's diabetes management was optimized with insulin, and he was referred to oncology. He is currently undergoing neoadjuvant chemotherapy, with plans to proceed with surgery in the near future.

Conclusion: The presence of islet-associated autoantibodies in patients with PDAC complicates the classification of diabetes, emphasizing the need for thorough investigation in such cases. In our case, intermediate C-peptide concentration 12 years post-diagnosis suggested either a neoplastic or autoimmune cause for diabetes deterioration. Additional research is crucial to clarify the involvement of diabetes autoantibodies in PDAC and to provide evidence to clinicians faced with diagnostic uncertainty in such cases.

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Abstract ID: 3513

Changes in glycaemic control after connected insulin pen initiation in UK routine clinical practice

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Aims: To use real-world data from routine clinical practice to investigate whether people in the UK with diabetes receiving multiple daily insulin injections and using a continuous glucose monitor (CGM) had improved glycaemic control with a connected insulin pen.

Methods: Adults with insulin-treated diabetes initiating bolus insulin injections with a NovoPen® 6 or NovoPen Echo® Plus connected pen and using a CGM with associated app who consented to share anonymous data were included. Time in range (TIR; 3.9- 10.0 mmol/L), time below range (TBR; <3.9 mmol/L) and time above range (TAR; >10.0 mmol/L) were measured at baseline and 3, 6 and 12 months after connected pen initiation; only days with >15% CGM coverage with connected pen injection data actively uploaded (>1 upload in past 14 days) were considered. Subgroup analyses by baseline TIR for people with three months' baseline CGM data were also conducted.

Results: Data from 28 May 2021 to 3 March 2024 were collected from 14,167 people with diabetes (2,151,056 days with CGM data). After initiation of a connected pen, mean TIR increased significantly from baseline by 0.88% (p<0.0001) and 0.82% (p<0.0001) at months 3 and 6, respectively, but not at month 12 (0.18% increase; p=0.49). Mean TBR decreased significantly from baseline by 0.20% (p<0.0001) at months 3 and 6 and by 0.24% (p<0.0001) at month 12. Mean TAR significantly decreased by 0.69% (p<0.0001) and 0.63% (p=0.0004) at months 3 and 6, respectively, but not at month 12 (0.06% increase; p=0.83). In subgroup analyses, mean TIR increased from baseline by 3.56% (p<0.0001) at month 12 in people with baseline TIR <40%.

Conclusion: Initiation of a connected insulin pen was associated with increased TIR at months 3 and 6; however, no difference was observed at month 12. Numerically higher improvements were observed in people with the lowest baseline TIR

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NVH is an employee of and shareholder in Novo Nordisk A/S.
YA and MM are employees of and shareholders in Novo Nordisk Ltd.
EGW has received personal fees from Abbott, AstraZeneca, Dexcom, Eli Lilly, Embecta, Insulet, Medtronic, Novo Nordisk, Roche, Sanofi, Sinocare and Ypsomed, and research support from Abbott, Embecta, Insulet, Novo Nordisk and Sanofi.
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Diabetic striatopathy as the first presentation of diabetes mellitus

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Introduction: Hyperkinetic movements are associated with poorly controlled diabetes. Diabetic striatopathy is a disease phenomenon characterised by chorei-ballistic movement or suggestive signature changes in the striatum on imaging, or both.
Case presentation: A 57-year-old female presented with a two-week history of right- sided choreiform movements. She had no past medical history. Her investigations revealed blood glucose of 44.5 mmol/L, hemoglobin A1C 173 mmol/mol (18%), urea 5.6 mmol/L (2.5-7.8 mmol/L), creatinine 65 mmol/L (49-90 mmol/L), and eGFR of 80 ml/min/1.73m^2 (> 60 ml/min/1.73m^2). CT scan of the head showed hyperdensity in the left basal ganglia. MRI of the head showed reduced T2 and FLAIR signal in the left basal ganglia projection and confirmed diabetic striatopathy. The patient was commenced on variable rate insulin (VRII) and long-acting insulin (glargine). Diabetes autoantibodies were negative and C-peptide was 387 pmol/L (343-1803 pmol/L). She was commenced on haloperidol for her hyperkinetic movements, with minimal therapeutic effect. Neurology opinion recommended addition of trihexyphenidyl and up-titrating the dose of tetrabenazine.
Metformin was commenced along with insulin and the patient's glycaemic control improved. Unfortunately, her hyperkinetic movements did not resolve completely. She is being followed up by the diabetes and neurology team.
Discussion: The pathogenesis of diabetic striatopathy involves multifactorial mechanisms, including chronic hyperglycaemia, vascular dysfunction, oxidative stress and inflammation. Our case is unique as the initial presentation of our patient was with choreiform movements, and she was subsequently found to have diabetes.
Conclusion: Diabetic striatopathy should be considered as a differential diagnosis in patients presenting with choreiform movements.

Abstract ID: 3503

Exploring demographic and temporal influences on bolus insulin injection adherence among connected insulin pen users with diabetes in the UK

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Aims: To investigate factors influencing probability of missing bolus injections in connected insulin pen users.
Methods: Adults with diabetes (all types) using NovoPen® 6 or NovoPen Echo® Plus for bolus injections and a continuous glucose monitor (CGM) with associated app who consented to share anonymous data were included. Missed bolus doses were defined as no bolus injection within −15 to +60 minutes of a meal. Meals, detected by the GRID algorithm, were categorised as breakfast (6:00-10:00), lunch (11:00-15:00), dinner (17:00-21:00), and snacks (outside these intervals). Days with >70% CGM coverage and >1 bolus injection were included. Priming injections were excluded. Endpoints were probability of a day with a missed bolus dose by age, engagement (number of data uploads per 2 weeks and upload number in the past 2 weeks vs user mean) and time of administration (day/meal). Probability was estimated by generalised linear mixed model based on logistic regression with participant as random effect and fixed-effect covariates on participant and day level.
Results: Data were collected from 10,246 people (1,323,515 days with CGM and injection data). Mean number of daily bolus doses was 4.0 (standard deviation 1.7; range 1.0-16.0). Mean probability of a day with a missed bolus dose was 51.3% (95% confidence interval [CI] 50.2, 52.4), which decreased with increasing age and engagement. Estimated probability of a missed bolus dose was lowest on Sunday (49.6% [95% CI 48.5, 50.6]), increasing daily and peaking on Friday (52.7% [51.6, 53.8]). Peak period for missing a bolus dose was snack time (23.4% [95% CI 22.9, 23.8]), followed by lunch (14.9% [14.5, 15.2]), dinner (13.9% [13.6, 14.2]) and breakfast (9.0% [8.7, 9.2]).
Conclusion: Probability of a day with a missed bolus dose decreased with increasing age and engagement, with lowest and highest adherence on Fridays and Sundays, respectively.

Disclosures
JE has received advisory/speaker fees from Abbott, Boehringer, Dexcom, Glooko, Insulet, Lilly, Novo Nordisk, Roche, Sanofi and Ypsomed.
MLJ is an employee of and shareholder in Novo Nordisk A/S.
AR and RT are employees of and shareholders in Novo Nordisk Ltd.
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Abstract ID: 3472

Hyperchloremia delays DKA resolution - reality or myth?

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Background: Diabetic ketoacidosis (DKA) treatment aims to restore metabolic homeostasis with insulin and intravenous fluid (IVf) replacement. The standard IVf for volume resuscitation and early maintenance therapy is 0.9% normal saline (NS). However, the use of large amounts of NS has been associated with the development of hyperchloremic metabolic acidosis (HMA), which is linked to delayed DKA resolution.
Aim: To determine the effect of hyperchloremia and IVf choice (NS/ Plasmalyte/both) on time to DKA resolution.
Methods: Retrospective review of clinical records of 25 DKA patients admitted to QEQM hospital over six months.
Results: 25 patients with DKA from October 2023 to March 2024 were identified. Mean age was 47.8 years, 21(84%) patients were male. 18 (72%) had type 1 diabetes (T1DM), 4 (28%) type 2 diabetes (T2DM). 17 (68%) were treated with MDI insulin, 1 (4%) oral anti-diabetic agents, 4 (8%) insulin pump, 1 (4%) MDI and oral anti-diabetic agents, and 4 (16%) had newly-diagnosed diabetes.
Mean pH at presentation was 7.13, ketones 4.97, HCO3 10.1,

chlorine 101.9, K+ 5.1mmol/L and creatinine 84.24umol/L. Mean HbA1c was 92.6 mmol/mol. Main DKA precipitants were sepsis (40%) and insulin omission (36%). Hyperchloremia was present in 7 (28%) patients and all were administered NS. 21 patients (84%) had resolution of DKA in 12 hours or longer, and 6 (28%) had hyperchloremia, versus 4 (16%) patients whose DKA resolved in less than 12 hours.
Conclusion: Presence of hyperchloremia, and choice of IVf, did not influence time to resolution of DKA in our study.

Abstract ID: 3530

Hyperlipidaemia management in patients with diabetic foot ulcers

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Aim: To analyse lipid profiles in a multidisciplinary foot clinic.
Methods: A retrospective cohort study was conducted involving 100 patients with diabetic foot ulcers (DFUs). Baseline and follow-up lipid profiles were collected and analyzed. The study also assessed the use of lipid-lowering medications, compliance with prescribed therapies, and the incidence of amputations.
Results: Baseline lipid profiles were available for 89 out of 98 patients, while follow-up lipid profiles were obtained for 76 out of 99 patients. Only 2 out of 73 patients (2.7%) achieved the target non-HDL cholesterol level (<40% reduction). The majority (97.3%) did not achieve target lipid levels. Among the 98 patients, reasons for not being on statins included no prescription and no documentation (53), non-compliance (14), and allergies to specific statins (9); the rest (24) had no allergies to statins. Changes in medication included switching to atorvastatin (3) and stopping statins (2). The type of diabetes was predominantly type 2 (T2DM) (84 out of 98), with a smaller proportion having type 1 (T1DM) (14 out of 98). Amputations were performed in 40 patients, with the most common procedures being toe amputations (18) and toe plus foot amputations (2).
Conclusion: Management of hyperlipidemia in patients with DFUs at the diabetic foot clinic is currently inadequate, with only a small percentage reaching the target non-HDL cholesterol levels recommended by NICE guidelines. Improved adherence to lipid-lowering therapies and more effective management strategies are needed to prevent complications such as amputations in this high-risk group. Effective hyperlipidemia management in DFU patients is crucial for better cardiovascular health, improved wound healing, and reduced severe complications. Overall, lipid profiles are vital in diabetic clinics for assessing cardiovascular risk, guiding treatments, preventing complications and improving patient outcomes.

Abstract ID: 3461

Immunotherapy-induced endocrinopathies: unraveling a clinical case of immune-mediated diabetes

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Immunotherapy, a cancer treatment leveraging the individual's immune system, has demonstrated its efficacy by eliciting responses from immune cells in and around tumours, notably tumour-infiltrating lymphocytes (TILs). The presence of TILs often correlates with more favourable outcomes in cancer cases.
Immune-mediated adverse events (imAEs) accompany immunotherapy in 13.7-54% of patients. The endocrine system is involved in nearly 10% of cases, representing a common form of imAEs. Despite the potential involvement of any secreting endocrine glands, immune-mediated thyroid dysfunction stands out as the most prevalent variant.
A distinctive aspect of endocrine imAEs lies in the ability to safely continue immune therapy concurrently with replacement hormonal treatment. On the other hand, if these issues are discovered later, they may worsen and necessitate resuscitation or urgent care. Immune-mediated diabetes is a rare complication, with an incidence rate reported at only 0.1%. This report aims to describe a clinical case involving the primary development of diabetes during ongoing immunotherapy with pembrolizumab, coupled with the secondary development of thyroid gland pathology.
Case report: The case involves a 51-year-old female diagnosed with central cancer of the right intermediate bronchus (squamous cell carcinoma), stage IIB (pT2bN1(1/30) cM0). Since June 13, 2023 the patient has been undergoing adjuvant immunotherapy with pembrolizumab. Her medical history includes prior observation by an endocrinologist due to nodal formations in the thyroid gland without thyroid dysfunction. After completing 4 cycles of immunotherapy, she noticed a sudden and significant change in her health condition, characterized by a strong thirst and a dry mouth. Immediate medical check revealed elevated blood glucose levels up to 17 mmol/L, glucosuria, acetone in urine (+++), glycated hemoglobin at 8.3%, C-peptide (fasting) at 1.16 IU/mL, Insulin (fasting) at 1.16 IU/mL, and TSH at 3.2 IU/mL. The presence of absolute insulin deficiency did not raise any doubts, and the diagnosis of type 1 immune-mediated diabetes was established. Insulin therapy in a basal-bolus regimen was immediately initiated, complemented by continuous glucose monitoring. Subsequent blood monitoring indicated a decrease in TSH levels and an increase in free T3, signaling the initiation of thyroid tissue destruction amidst ongoing treatment. This case underscores the importance of timely identification and management of immune-related complications on such therapy, shedding light on the unique challenges presented by the interplay between immunotherapy, endocrine function and resultant adverse events.

Abstract ID: 3480

Impact of age on the efficacy and safety of once-weekly insulin icodec versus once-daily insulin in type 2 diabetes (ONWARDS 1-5)

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Aims: To assess the effects of once-weekly insulin icodec (icodec) versus once-daily (OD) basal insulin comparators across age subgroups in adults with type 2 diabetes (T2DM) enrolled in the ONWARDS trials who were insulin-naïve (ONWARDS 1, 3, 5) or insulin-treated (ONWARDS 2, 4).
Methods: Efficacy and hypoglycaemia rates for icodec versus OD comparators across three age subgroups (<55, 55–64 and ≥65 years) were assessed post hoc per trial. Estimated treatment differences (ETDs) were modelled using analysis of covariance (ANCOVA), with treatment, region, subgroup and treatment by subgroup interaction as fixed factors and baseline response as covariate.
Results: Larger reductions in HbA1c were seen with icodec versus OD comparators from baseline to planned end of treatment (EOT) in ONWARDS 1–5 across all age subgroups, except individuals aged ≥65 years in ONWARDS 4; there was no significant difference between subgroups (p>0.05 for all trials). ETDs for icodec versus OD comparators (95% confidence interval) in ONWARDS 1–5, respectively, were: −0.11 (−0.29, 0.08), −0.17 (−0.48, 0.15), −0.19 (−0.40, 0.03), −0.07 (−0.32, 0.17), −0.33 (−0.71, 0.05) for the <55-year subgroup; −0.20 (−0.37, −0.03), −0.22 (−0.45, 0.00), −0.27 (−0.49, −0.05), −0.06 (−0.28, 0.15), −0.25 (−0.59, 0.08) for the 55–64-year subgroup; and −0.02 (−0.21, 0.17), −0.24 (−0.47, −0.02), −0.16 (−0.39, 0.07), 0.17 (−0.04, 0.39), −0.55 (−0.96, −0.15) for the ≥65-year subgroup. Overall, rates of clinically significant and severe hypoglycaemic episodes were low in both treatment arms across age subgroups. The proportions of individuals achieving HbA1c <7% without clinically significant or severe hypoglycaemic episodes at EOT were greater with icodec versus OD comparators irrespective of age, except individuals aged <55 and ≥65 years in ONWARDS 4; no significant difference was seen between age subgroups.
Conclusion: Overall, efficacy and hypoglycaemia outcomes were consistent for icodec versus OD comparators irrespective of age.

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CD has received honoraria from the American Board of Internal Medicine, Asahi Kasei Pharma and Novo Nordisk; has received grant funding from the National Institutes of Health and the US Department of Veteran Affairs; and has conducted clinical trials with Lilly, Novartis and Novo Nordisk.
CL, MFM and PHN are employees of and shareholders in Novo Nordisk.
SS has served as an advisory board member for Abbott Pharmaceuticals, GSK, Glenmark, Novo Nordisk, Sun Pharma and USV; and has received speaker's honoraria from Novo Nordisk, Mankind Pharma, Micro Labs, MSD and USV.
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Clinical trial registration: ONWARDS 1 (NCT04460885), 2 (NCT04770532), 3 (NCT04795531), 4 (NCT04880850) and 5 (NCT04760626)

Abstract ID: 3459

In-hospital management of patients with type 1 diabetes and eating disorders (T1DE) in a secure eating disorders unit

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Introduction: Insulin is essential in the management of type 1 diabetes (T1DM) but can be very challenging for patient with T1DE due to the perceived weight-related implications of insulin. Study design: In this retrospective analysis we reviewed data from seven patients admitted to a secure eating disorders unit with T1DE, under an expert MDT, over a period of 57 months.
Aims and objectives: This project was designed to assess the safety and utility of specifically designed protocols to be used in a secure eating disorders unit managed by registered mental health nurses supported by the diabetes team.
Results: A total of seven patients were admitted to the facility. The mean duration of diabetes was 11.7 years while mean length of stay was 15.9 weeks. Insulin administration was started at 0.38 units/kg and was titrated up to 0.61 units/kg while using graduated transition from nurse administration to self-injection. Mean weight gain was 0.47 kg/week, reduction in mean glucose levels was 25.9% and a 17.5% reduction in HbA1c was achieved. We did not have any severe hypoglycaemic episodes although 2 DKA-related admissions were recorded. No significant electrolyte abnormalities were recorded although two patients had mild hypokalaemia and hypophosphatemia.
Outcome: Using specially designed and tested protocols we were able to demonstrate a safe and effective staged approach to re-insulinisation and refeeding in a group of people with T1DE requiring in-patient support for management where standard protocols would not be acceptable. This treatment journey is complex and requires an expert MDT setting.

Abstract ID: 3485

Isolated raised free thyroxine level due to mutation of the transthyretin gene: a benign condition

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Background: Thyroxine (FT4) is a product synthesized by the thyroid follicles. More than 99% of the circulating hormone is bound to plasma proteins, mainly to thyroxine-binding globulin, transthyretin and albumin. Genetic mutations can cause dysfunction in the binding proteins, resulting in falsely raised free thyroxine levels in the blood. We present a case of a 16-year-old boy with raised free thyroxine levels due to a benign mutation in the transthyretin gene.

Case presentation: A 16-year-old boy presented with tiredness after a recent COVID infection but no symptoms of an overactive thyroid. He did not have any past medical or family history. He was not on any medications and systemic examination was unremarkable. Blood tests showed isolated raised free thyroxine level (FT4) of 24.1pmol/L (12-22) with normal thyroid stimulating hormone (TSH) of 1.77mU/L (0.3-4.2) and free triiodothyronine (FT3) of 6.6pmol/L (3.9-8).
Genetic blood tests were sent due to discordant thyroid function tests and they confirmed a mutation in genetic variant (T139M) of the transthyretin gene.
Conclusion: Heterozygous variants (Thr139Met) increase the T4 binding affinity of transthyretin (TTR, also termed thyroxine-binding prealbumin). This protein forms circulating, iodothyronine-binding tetramers and can also cause raised FT4 (and sometimes FT3). Interestingly, occurrence of hyper-thyroxinemia in genetically confirmed cases can be intermittent, with such variability being attributed to non-thyroidal illness.
Mutations in the transthyretin gene with this variant (T139M) circulating thyroid hormone binding protein can cause falsely elevated thyroid hormone (FT4 and FT3) results with some measurement methods. Most importantly, this entity is entirely benign and the patient's thyroid status is completely normal.

Abstract ID: 3455

Management of hyperglycaemia in patients undergoing chemotherapy In Gwynedd Hospital, North Wales

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Background: People with cancer are at an increased risk of developing new-onset diabetes or hyperglycaemia, independent of an underlying diagnosis of diabetes, as well as worsening control of their pre-existing diabetes. They often receive chemotherapy with glucocorticoids (mostly dexamethasone and prednisolone) before and after treatment for prophylaxis of hypersensitivity reactions and as an antiemetic. Patient education about hyperglycaemia symptoms and monitoring blood sugar is vital, and for persistently raised blood sugar appropriate interventions are needed.
Objectives: The aim of this project is to evaluate whether, in patients receiving glucocorticoids as part of the chemotherapy regimen, glucose levels are monitored regularly and relevant measures are taken when necessary.
Methods: This was a retrospective study involving 192 patients who received chemotherapy with dexamethasone from 1st to 31st August, 2023 at the oncology department and local chemotherapy unit of Gwynedd Hospital, North Wales. The following data were collected: background of diabetes, venous blood glucose and/or capillary blood glucose before steroid treatment, baseline and follow-up HbA1c.
The Joint British Diabetes Society for Inpatient Care guidelines were referred to as an audit standard.
Results: Of 192 patients 75% did not have a past medical history of diabetes or impaired glucose tolerance. Baseline HbA1c was checked in 43% and follow-up HbA1c in 19%. Venous plasma and capillary blood glucose were checked in 61% and 7% patients, respectively.
Conclusions: This study showed that a suboptimal number of the patients had their venous plasma glucose and/or baseline HbA1c checked prior to treatment. Monitoring for hyperglycaemia needs to be improved in order to meet the standard set by the guidelines. We recommend that patients have their blood glucose checked prior to starting chemotherapy with glucocorticoids and during each session.
Recommendations:
1. Before starting glucocorticoid therapy, check venous plasma glucose and baseline HbA1c.
2. Venous plasma glucose to be checked before each steroid-containing chemotherapy session.
3. Educate patients in symptoms of hyperglycaemia.
4. Get the diabetes specialist nurse or endocrinologist involved when necessary.
5. Notify the GP.

Abstract ID: 3481

No evidence of increased physical activity-related hypoglycaemia with once-weekly insulin icodec versus once-daily basal insulin in T2DM (ONWARDS 1- 5)

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Aims: To examine physical activity (PA)-related hypoglycaemia, based on self-reported data, in adults with type 2 diabetes (T2DM) who received once-weekly insulin icodec (icodec) or once-daily (OD) basal insulin comparators in the ONWARDS 1-5 phase 3a trials. Participants were insulin-naïve (ONWARDS 1, 3, 5) or insulin-treated (ONWARDS 2, 4).
Methods: Participants enrolled in ONWARDS 1- 5 who experienced hypoglycaemic episodes were instructed to note any relation to PA in a digital diary. For this post hoc analysis, descriptive statistics were used to summarise the proportion of level 2 (blood glucose <3.0 mmol/L confirmed with meter) or level 3 (requiring external assistance for recovery) hypoglycaemic episodes that were PA-related. The odds ratio for a PA-related hypoglycaemic episode with icodec versus OD comparator was estimated per trial, with two-sided p-values.
Results: The number of PA-related level 2 or 3 hypoglycaemic episodes was low in ONWARD 1- 3 and 5, with a higher number seen in ONWARDS 4 (basal-bolus trial). There were no significant differences in the odds of experiencing PA-related level 2 or 3 hypoglycaemia for icodec versus OD comparators ($p>0.05$ for all trials). The proportion of hypoglycaemic episodes that were PA-related trended higher or was comparable with icodec versus OD comparators in insulin-naïve participants in ONWARDS 1, 3 and 5 (10.6% [PA-related/total episodes, 24/227] vs 6.6% [8/121], 18.9% [10/53] vs 8.0% [2/25] and 9.6% [10/104] vs 8.6% [7/81], respectively) and trended lower or was comparable in insulin-treated participants in ONWARDS 2 and 4 (9.7% [11/113] vs 31.0% [13/42] and 19.1% [180/994] vs 19.8% [186/938], respectively).
Conclusion: The incidence of PA-related level 2 or level 3 hypoglycaemia in the ONWARDS 1- 5 trials was low and was not worsened by treatment with icodec versus OD basal insulin comparators. Despite some uncertainty due to low incidences, these data are reassuring.

Disclosures
AK has participated as an investigator in trials funded by Novo Nordisk.
MCR reports consulting fees from Eli Lilly, the Jaeb Center for Health Research, Zealand Pharma and Zucara Therapeutics; speaker fees from Eli Lilly, Dexcom Canada, Novo Nordisk and Sanofi Diabetes; and stock options from Supersapiens and Zucara Therapeutics.
SH reports consultancy fees from Zealand Pharma and Zucara Therapeutics; fees for speaker panel involvement with Novo Nordisk; data safety monitoring board involvement with Eli Lilly; and research support from Dexcom.
MA, LC and SKW are employees of and shareholders in Novo Nordisk A/S.
VCW reports speaker fees from and advisory board meeting involvement with Boehringer Ingelheim, Eli Lilly and Novo Nordisk.

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Abstract ID: 3510

Prevalence and screening for glucokinase monogenic diabetes amongst women diagnosed with gestational diabetes in a large, ethnically diverse hospital population

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Introduction: Maturity onset diabetes of the young (MODY) is monogenic, autosomal dominant diabetes, occurring in 1-2 % of the population. People with glucokinase (GCK) - MODY are usually asymptomatic, with mild fasting hyperglycaemia. GCK-MODY may be misdiagnosed as the more commonly encountered gestational diabetes (GDM), reducing opportunities for intervention and family screening. Although risk factors for GCK-MODY in pregnancy are defined within White populations, there is an urgent need to clarify prevalence and risk factors in a multi-ethnic cohort.
Aim: To identify whether the current GCK-MODY screening pathway using NHS England R142 glucokinase-related fasting hyperglycaemia genetic testing guidelines effectively identifies affected women in an ethnically diverse maternity population in the UK.
Methods: We conducted a retrospective observational study in a single tertiary centre serving an ethnically diverse community. We identified women who had a pregnancy with gestational diabetes in 2023, who met screening criteria. We reviewed our local database with data on fasting plasma glucose (FPG), BMI and ethnicity to identify those who should have had genetic testing undertaken, with an expected delivery date in the first half of 2023.
Results: During the study period, we identified 431 women with GDM from antenatal hospital records, including 126 (29%) White women, 277 (64%) from multi-ethnic backgrounds, and 28 (6.5%) women with missing information. We identified 29 women (6.7%), 79% non-White and 21% White, who met criteria for GCK-MODY testing in pregnancy, with FPG between 5.5 to 8 mmol/L and BMI below 30 kg/m^2 if White or BMI below 27 kg/m^2 for other ethnicities. Only one of these women was tested (result negative). Following this a catch-up programme was undertaken to review those women who should have been tested. This resulted in 12 women being tested with FPG, with normal results; 8 women were tested with HbA1c (36 to 58 mmol/mol), with normal results; and 7 women did not attend postnatal testing. Furthermore, 9 women (78% non-White and 22% White) tested with FPG or HbA1c have met the criteria for further GCK-MODY testing and results are awaited.
Conclusions: We have identified that within our centre testing for GCK-MODY is frequently overlooked. Retrospective testing has practical difficulties and does not offer the same diagnostic value as testing during pregnancy. We plan to update our antenatal pathway to ensure that routine testing of eligible women is undertaken.

Abstract ID: 3509

Preventing hypoglycaemia in the management of hyperkalaemia: a multicentre Quality Improvement Project

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Background: Hypoglycaemia is a significant risk associated with treating hyperkalaemia using insulin and dextrose. This quality improvement project aimed to determine the incidence of hypoglycaemia (blood glucose <4 mmol/L) following hyperkalaemia treatment with insulin across three hospital sites within the Aneurin Bevan University Health Board. Subsequently, we sought to reduce the incidence of hypoglycaemia through the implementation of new management guidelines and educational interventions.
Methods: The study was conducted at Grange University Hospital, a tertiary care centre, and two district general hospitals, Nevill Hall Hospital and Royal Gwent Hospital. We collected pre-intervention data retrospectively from May to August 2023. New guidelines introduced in December 2023 emphasized regular glucose monitoring before and after treatment. Awareness of the new guidelines was raised through a teaching session and posters in the hospital wards. Post-intervention data were collected retrospectively from December 2023 to March 2024.
Data were extracted from online pathology records and treatment charts for patients with serum potassium >6 mmol/L. Key data points included hyperkalaemia levels, treatments administered, timing of blood glucose monitoring, and incidence of hypoglycaemia post-treatment.
Patients were excluded if they experienced hyperkalaemia during diabetic ketoacidosis treatment, hyperosmolar hyperglycaemia syndrome treatment, were not treated with insulin for hyperkalaemia, were in critical care, were paediatric or neonate patients, or had missing medical records.
Results: Pre-intervention: 191 hyperkalaemia episodes treated with insulin were included. Hypoglycaemia occurred in 8 cases (4.6%), with severe hypoglycaemia in 3 cases (1.6%). Glucose was measured prior to treatment in 113 cases (59%).
Post-intervention: 155 hyperkalaemia episodes treated with insulin were included. Hypoglycaemia occurred in 14 cases (9%), with severe hypoglycaemia in 6 cases (3.9%). Glucose was

measured prior to treatment in 88 cases (57%). The frequency of post-treatment glucose monitoring improved, with 34 cases (22%) lacking glucose measurement within 5 hours post-treatment, compared to 74 cases (39%) pre-intervention.
Conclusion: The introduction of new hyperkalaemia management guidelines improved glucose monitoring practices; however, there was an increase in the incidence of hypoglycaemia. We will continue to implement strategies to reduce hypoglycaemia and ensure patient safety in hyperkalaemia management through further educational interventions and auditing.

Abstract ID: 3523

Real-world outcomes of Omnipod 5® (OP5) hybrid closed loop system (HCL) in adults with T1DM new to insulin pump therapy: a retrospective single-centre observational study

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Aims: The introduction of Omnipod 5® (OP5) has led to a surge in requests for this tubeless HCL system from people with T1D (pwT1D). We report real-world outcomes three months following OP5 initiation in pwT1D on multiple-daily insulin injections (MDI) and new to insulin pump therapy.
Methods: PwT1D new to insulin pump therapy who started on OP5 between 1st August 2023 and 16th January 2024 were included. Glycaemic outcomes from baseline to 3 months are detailed. Laboratory haemoglobin A1c (HbA1c), weight at baseline and following OP5 are reported.
Results: 27 pwT1D (13 female,14 male; age range 20-49 years) commenced OP5. All were using continuous glucose monitors (CGM) with MDI before HCL was started. Mean time-in-range improved from 48.41% to 62.81% (p<0.0001), mean level 1 time-above-range (10-13.9 mmol/L) improved from 25.15% to 21.04% (p=0.031), mean level 2 time-above range (>13.9mmol/L) improved from 23.37% to 14.74% (p=0.002), level 1 time-below-range (3.0-3.9 mmol/L) improved from 2.22% to 1.26% (p=0.06) and level 2 time-below-range (<3.0 mmol/L) improved from 0.44% to 0.07% (p=0.033). Glucose variability was unchanged (co-efficient of variation 34.80% from 35.91%; p=0.16). Glucose management indicator (GMI) improved from 62.56 mmol/mol to 57.16 mmol/mol (p<0.0001, n=24) Mean total daily dose showed a non-significant trend towards reduction from 42.05 units to 38.42units (p=0.12, n=26)
Data for HbA1c were available for 22 individuals and were in keeping with GMI, with improvements from 65.2 mmol/mol to 54.8 mmol/mol (p=0.001). Weight data for 24 individuals reflected a non-significant trend towards weight gain from 72.58kg to 71.57kg (p=0.15).
Conclusions: Our data report immediate improvements in glycaemic control in pwT1D who are new to insulin pump therapy and were commenced on the tubeless OP5 HCL system. They provide further support for efficacy of this popular patch HCL system and provide learnings for wide-scale adoption of HCL systems.

Abstract ID: 3498

Real-world user experience with hybrid closed loop insulin pump therapy

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Background: Hybrid closed loop (HCL) insulin pumps, which are linked to continuous glucose monitoring (CGM) and automatically adjust the background insulin delivery and the mealtime insulin dose with manual input, are increasingly used in the treatment for people with type 1 diabetes (Pw-T1DM).
Aim: To evaluate effectiveness and satisfaction among Pw-T1DM using HCL insulin pumps and stand-alone insulin pumps (SAP).
Methods: As a service evaluation, prospective data were collected at a pump clinic in a District General Hospital using a questionnaire between January to June 2023. Demographic data, hypoglycaemia awareness using GOLD score, user satisfaction with Diabetes Treatment Satisfaction Questionnaire (DTSQ), emotional distress with Problem Areas In Diabetes (PAID) scale, glucose levels (TIR, GMI and HbA1c) and qualitative data with free text feedback were collated among the insulin pump users.
Results: 47 participants completed the questionnaire, with 18 (38.29%) using HCL and 29 (61.70%) on SAP. Though no significant differences were found in GOLD and PAID scores, the DTSQ scores in HCL users were significantly higher than in SAP users (mean 33.44 ± 2.06 vs 30.17 ± 6.03, p=0.011). HCL users have better glycaemic control with improved Time In Range (63.61% ± 10.92 vs 51.07% ± 18.46, p=0.005), lower Glucose Management Indicator (55.94 ± 7.11 vs 63.45 ± 10.59 mmol/mol, p=0.006) and lower HbA1c (52.50 ± 8.47 vs 64.66 ± 11.89 mmol/mol, p=0.001). Despite HCL users reporting greater levels of satisfaction on auto adjustment and improved glycaemic control, they were dissatisfied with the frequent alarms, the speed of correction for hyperglycaemia and prevention or recovery of hypoglycaemia as they had high expectations about HCL.
Conclusion: HCL users have better glycaemic control and better treatment satisfaction than SAP users. Setting a realistic user expectation, user education, especially on the timing of boluses, hypo treatment and about the functionality of different HCL systems and advances in technology (or HCL algorithms) could improve both glycaemia and satisfaction further.

Abstract ID: 3486

Real-world data of oral semaglutide on cardiovascular risks (Association of British Clinical Diabetologists national audit)

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Background and aims: Previous randomised clinical trials have established the efficacy of GLP1ras (Glucagon-like-Peptide 1 receptor agonists) in reducing cardiovascular events. Current guidelines have recommended its use as a first-line or second-line treatment in patients with type 2 diabetes (T2DM) and established atherosclerotic cardiovascular disease. Oral semaglutide is the only GLP1ra available in oral form but its effectiveness in reducing cardiovascular risks profile in real-world practice remains unclear. This is relevant due to the specific requirement required for oral intake due to its reduced bioavailability
Materials and methods: Data were obtained from the Association of British Clinical Diabetologists (ABCD) national online audit tool. The data were collected from 10 centres across the UK and analysed using STATA 18.
Results: A total of 542 individuals was identified. 39.5% (n=214) were female; mean age = 58.5 +/- 12.7 years; mean diabetes duration = 11.3 +/- 7 years. 82.3% were White, 14.9% were Asian and 2.8% were Black. There was a 0.8+/-1.6% reduction in HbA1c, 3.8+/-7 kg reduction in weight, 1.4=/-0.2 reduction in BMI, 0.2+/-1 mmol/L in total cholesterol, 0.6+/-0.3 mol/L in triglycerides and 5 +/- 1.4 mmHg reduction in systolic blood pressure in the follow-up visits after treatment. Mean follow-up time was 31 +/- 23.6 weeks.
Conclusion: Oral semaglutide was associated with a significant improvement in cardiovascular risk factors. The magnitude of change in this real-world dataset is, however, relatively small compared to evidence from the randomised controlled trial PIONEER 6. This may reflect reduced bioavailability and variable drug absorption due to non-compliance with instructions for optimal oral consumption of oral semaglutide.

Abstract ID: 3508

Screening for vitamin B12 deficiency in patients with T2DM taking metformin

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Background: Metformin is recommended as the first-line medication in the management of type 2 diabetes (T2DM). Vitamin B12 deficiency is recognised as one of the side effects of metformin therapy, and the risk of low vitamin B12 levels increases with higher dose and longer duration of metformin use.
Aims: To investigate the proportion of T2DM patients treated with metformin who had vitamin B12 level measurement in the last 15 months.
To investigate the proportion of patients treated with metformin who had low vitamin B12 levels.
Method: This was a retrospective analysis of 102 patients with T2DM attending secondary care clinic in the Neath Port Talbot hospital. Demographic data and medication history were collected. The pathology portal was reviewed to determine if any vitamin B12 measurement had been done in the last 15 months (1st January 2023-31st March 2024) or in the last 10 years (2014-2024). Low vitamin B12 level was defined as less than 180ng/L.
Results: 41 (40%) patients had vitamin B12 levels measured in the previous 15 months, and 79 (81%) patients had vitamin B12 measurement once in the previous 10 years. 23 (22.5%) did not have a vitamin B12 measurement. Eight patients were treated with vitamin B12 replacement. Five patients had low vitamin B12 levels and three of the five patients with low vitamin B12 levels were not receiving any vitamin B12 treatment.
Conclusion: The majority of patients with T2DM treated with metformin were not receiving periodic monitoring of their vitamin B12 levels. The prevalence of vitamin B12 deficiency was approximately 11% in this cohort and not all those patients with low vitamin B12 were receiving treatment. This study highlights the importance of vitamin B12 monitoring in patients with T2DM who are treated with metformin.

Abstract ID: 3507

The efficacy of hybrid closed-loop insulin delivery vs sensor-segmented pump therapy in free-living conditions in people living with T1DM: a systematic review and meta-analysis of randomised controlled trials

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Background: The management of type 1 diabetes (T1DM) necessitates optimal insulin delivery alongside education on glucose control, dietary management and medication adherence. Traditional injection therapies present several challenges, prompting the exploration and optimisation of advanced technologies such as sensor-augmented pumps (SAP) and hybrid closed-loop systems (HCLS). With HCLS recommended by NICE in 2023, increasing our understanding of the efficacy and safety of this system is important to ensure its appropriate use, particularly in real-world free-living conditions and during pregnancy.
Objective: This systematic review and meta-analysis aims to evaluate the efficacy and safety of HCLS versus SAP in managing T1DM in free-living environments in adults and children.
Methods: A comprehensive search strategy was conducted in X medical literature databases and sought to identify randomised controlled trials (RCTs) conducted in people living with T1DM. RCTs had to compare SAP with HCLS in free-living conditions. Outcomes included those related to glycaemic control and index, such as glucose, Time in Range (TIR), hypoglycaemia and adverse events.
Results: Seven RCTs were identified including 580 participants; X were conducted in adults (X in pregnancy) and X were conducted in children. Overall, HCLS demonstrated more favourable effects on glycaemic control compared to SAP. Compared to SAP, the use of HCLS resulted in a statistically significant reduction in average glucose levels with HCLS (-17.43 mg/dL [95% CI: -24.46 to -10.40], Z = 4.86, p < 0.00001), with low statistical heterogeneity (I2 = 24%). No difference in sensor data variability was found between HCLS and SAP (-0.97 [95% CI: -2.18 to 0.24], Z = 1.58, p = 0.11). Safety outcomes indicated

a lower occurrence of hypoglycaemia in HCLS users compared to SAP users, but the overall frequency of hypoglycaemia was low in both groups. HCLS were associated with a higher number of severe hypoglycaemic episodes, with technical malfunctions or user errors cited as possible factors.
Conclusion: While HCLS offer significant benefits in improving glycaemic control in free-living conditions, the higher incidence of severe hypoglycaemic episodes due to technical issues underscores the need for further research. Addressing these technical challenges is crucial to enhance patient safety and optimise the effectiveness of HCLS in adults and children alike. Further research is needed to explore the efficacy of these devices in pregnant women.
Implications: The findings highlight the potential of HCLS in advancing T1DM management, supporting their implementation within the NHS. Findings suggest that future research should focus on improving the reliability and safety of these systems to fully realise their clinical benefits, particularly during pregnancy.

Abstract ID: 3526

The Roczen programme – real-world data on a digitally-enabled, time-restricted eating programme on health outcomes in a diverse group of adults with T2DM

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Introduction: Type 2 diabetes (T2DM) remains a major global health challenge and disproportionately affects those from non-White ethnic groups. Weight management (WM) can improve T2DM and lead to remission in some patients. However, fewer data exist about the efficacy of interventions in non-White groups. Roczen is a digital, specialist weight management programme that utilises time-restricted eating (TRE) in dietary guidance. The aim was to examine the impact of the programme in an ethnically diverse population with T2DM in the UK at six months (6m).
Method: Participants were enrolled in a clinical WM intervention with a TRE, modified-carbohydrate dietary plan. It was delivered by a multidisciplinary team via an App. Participants received regular clinical consultations, goal setting, feedback, culturally sensitive content and social support via peer mentoring. We included 131 patients (54±9 years, 55% male, HbA1c 59.1±10.6 mmol/mol, BMI 34.1±6.2kg/m^2) who were at varying stages of the Roczen programme. At baseline, 6.1% (n=8) were on insulin, 10.0% (n=13) were on a GLP-1 receptor agonist and 71.7% (n=94) were on an oral antihyperglycaemic medication. 55.7% were of White ethnicity (n=73) and 44.3% were from other non-White ethnic groups (n=58). We conducted a retrospective service evaluation and calculated mean±standard deviation to compare weight outcomes in different ethnic groups.
Results: From the data available, mean weight reduction was significant at 9.3±6.8kg (-9.7%) at 6m (p=0.02, n=46), with comparable mean reductions in people from White ethnicity and non-White ethnicity (ANOVA: p=0.31, White ethnicity: -10.2±7.7kg [-10.3%, n=25], non-White ethnicity: -8.2±5.3kg [-8.8%, n=21]). Greater than 5% weight reduction was achieved by 68% of people from White ethnicity and 76.2% of people from non-White ethnicity. Waist reduction was 9.4±7.6cm (-8.6%, p=0.0009, n=38) and HbA1c reduction was 7.5±11.9mmol/mol (p=0.03, n=15). Retention on the programme at 6m was similar in non-White and White ethnicity, at 74% and 71% respectively.
Conclusions: Evaluation of the Roczen programme, delivered in the real world and in a diverse population with T2DM, demonstrated a significant reduction of weight, waist circumference and HbA1c with high retention at 6 months compared to traditional programmes. Comparable weight outcomes were achieved by White and non-White ethnicity groups. Further evaluation is required to assess long-term outcomes.

Abstract ID: 3464

Two-year retrospective review of diabetic keto-acidosis admissions in adults with T2DM

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Aims: To investigate the aetiology and outcomes of diabetic keto-acidosis (DKA) in adults with a diagnosis of type 2 diabetes mellitus (T2DM).
Methods: A retrospective review of all DKA admissions was conducted to collect data on patients' demographics, clinical presentation and treatment outcomes over a period of two years at our hospital. Follow-up assessment and analysis were carried out one year later.
Results: There were 54 DKA admissions, with an incidence every 13.5 days. Patients were (mean ± SEM) 57.9 ± 2.0 years old, HbA1c 104.4 ± 3.9 mmol/mol, 59.3% men, 38.9% Caucasian and 27.7% with obesity. Eight patients were on sodium-glucose co-transporter-2 inhibitors (SGLT2i) (14.81%) and median [IQR] time of DKA after SGLT2i initiation was 45.5 days [24.5-428.5]. Precipitants included infections (42.6%), rationing of insulin (18.5%) and hypovolemia (14.8%). Duration of hospital stay was 9.5 ± 1.3 days. Nine patients (16.7%) were diagnosed with diabetes on presentation, with HbA1c 129.3 ± 5.8 mmol/mol (p<0.003). At one-year follow-up, eight patients had died (one on SGLT2i) and three patients had been diagnosed with Latent Autoimmune Diabetes of Adulthood. There was significant improvement in HbA1c to 75.5 ± 4.0 mmol/mol (p<0.0001).
Conclusions: DKA admissions are common, especially in Black and minority ethnic populations with obesity. It is imperative to investigate predisposing conditions and precipitating factors. Individuals with DKA as the first presentation of diabetes were younger, with poor glycaemic control and obesity. To prevent SGLT2-associated DKA it is suggested that patients be monitored for ketosis for six weeks after initiation of SGLT2i.

Abstract ID: 3502

Analysis of attitudes towards and experiences with physician associates in diabetes and endocrinology: a survey of Association of British Clinical Diabetologists members

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Aims: Issues surrounding physician associates (PAs) in the workforce have raised significant controversy and debate. This work undertaken by the Association of British Clinical Diabetologists (ABCD) aims to respond to the Medical Associate Professions Career Framework Consultation and improve understanding of the employment of PAs in the diabetes multidisciplinary team (MDT), their scope of practice, perceived benefits and disadvantages of the role, and attitudes towards their prospective employment.
Methods: Data for this study were collected via a survey of members of the ABCD. The survey consisted of questions about the respondents' employment of PAs in their team, their plans surrounding employing them and their experiences with PAs. 75 responses were received from a membership of 790. The data were analysed thematically.
Results: Themes identified were staffing, training and cost-effectiveness. Responses reported both negative and positive experiences with PAs. In the staffing domain, subthemes of managing rota gaps, continuity of care and retention of knowledge across rotations were observed. There is very limited evidence about PAs working in an out-patient capacity. In the training subdomain, subthemes of competition for opportunities, variable performance and lack of ongoing postgraduate training were observed. In the cost-effectiveness domain, we observed themes of comparative role cost-effectiveness, lack of role clarity and distinction, limitations to scope of practice and funding availability.
Conclusion: The survey responses showed polarised opinions on PAs, with both significant positives and negatives reported. Interpretation is complicated by the evolving situation and ongoing debate around the scope of practice of PAs within the diabetes MDT.

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Abstract ID: 3506

Gestational diabetes presenting later in pregnancy: what are the maternal and neonatal outcomes?

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Introduction: Screening for gestational diabetes is usually performed between 24 and 28 weeks' gestation, or earlier if there are high-risk factors. There is some evidence that women can develop gestational diabetes later in pregnancy but there is limited evidence regarding the effects that this can have on neonatal and maternal outcomes.
Method: We are auditing pregnant women who attend the joint diabetes antenatal clinics at Southmead Hospital using the following criteria:

1) The gestation at which the diabetes was diagnosed
2) Whether they had a previous normal oral glucose tolerance test (OGTT)
3) Diabetes treatment
4) Maternal and neonatal outcomes in the first few days after delivery

Results: We have collected data for January 2024. Twenty-eight patients developed gestational diabetes later in pregnancy, with a mean gestation of 31 weeks. The main reason for testing later in pregnancy was glycosuria (46% of patients) and an isolated raised HbA1c (21% of patients). Most patients were treated with diet or metformin.
Fourteen of the twenty-eight patients had a previously normal OGTT. Of these 14, two delivered babies with macrosomia. Other neonatal complications included a low birth weight requiring intensive care, jaundice (28%) and prematurity (7%). Maternal complications included pre-eclampsia, hypertension (7%) and post-partum hemorrhage (7%).
Conclusions: Although more data are needed, evidence so far suggests that maternal and neonatal complications can arise with gestational diabetes presenting later in pregnancy. It raises the question whether we should be screening for diabetes later in pregnancy, particularly considering that 50% of these patients had a previously normal OGTT.

Abstract ID: 3525

Medication and monitoring for patients with diabetes at the end of life: a retrospective case note audit from a tertiary care hospital in England

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Background: Care of diabetes mellitus (DM) at the end of life is a topic which is not well researched. National guidance does include recommendations about DM management in the last days of life (LDOL), however. We work at a tertiary care centre in the Midlands, UK. We scrutinised the management of DM in the LDOL for persons who died at our NHS Trust with a view to comparing our care with the nationally agreed standard.
Methods: A list of all patients who died in our hospital in November 2023 (n=188) was procured from Bereavement Services. From this record, we excluded those without a DM diagnosis as well as those who died within 24 hours of admission or in the emergency department or in critical care. In our Trust, an individualised end of life care plan (iPlan) is commenced when patients are thought to be in the LDOL. Any patients not on the iPlan were also excluded as they would not have been recognised as actively dying. Following all exclusions, 30 patients remained. Patient casenotes, available digitally, were then interrogated. All data were anonymised prior to analysis.
Results: 28/30 patients had type 2 diabetes (T2DM). The remaining patients had type 1 or type 3 diabetes. Mean age was 78.5 years (range 60-91 years). Fourteen of the 30 patients were female. Most patients (26/30) were referred to the Trust specialist palliative care team during their LDOL. Ten patients were referred to the specialist diabetes team. Only two patients continued with any form of DM treatment once they were recognised to be in the LDOL - both were on insulin with specialist diabetes input. Most patients (25/30) did not have any capillary blood glucose (CBG) monitoring in the LDOL. Of those who did, two of them were on insulin and were monitored less frequently than before. Another two patients had hypoglycaemic episodes recorded while on the iPLan; neither had documentation of the presence or absence of symptoms. Three patients had hyperglycaemic episodes with CBG above 12mM; none were documented as being symptomatic and no treatment was administered.

Discussion: In our Trust, the national guidance for DM management was, with some exceptions, generally well followed, but our study was limited by small numbers of patients with T1DM. Accordingly, it was not possible to adequately comment on their care.
Going forwards, a clinical tool has been developed and is being implemented in our Trust. This will help to ensure standardised care and to provide clear guidance for prescribers and nursing staff. We seek to audit again once this has been implemented.

Abstract ID: 3466

Review of glycaemic outcomes and anecdotal quality of life benefits following group start for Omnipod 5 in a District General Hospital

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Abstract: 15 pre-existing Omnipod and Dexcom G6 CGM users living with type 1 diabetes (T1DM) participated in a group education start for the Omnipod 5 hybrid closed loop (HCL) system. Participants were selected due to their previous Omnipod experience and continuous glucose monitoring (CGM) use as the first wave of transfers to the Omnipod 5 system prior (pre TA). The pump start consisted of two group sessions two weeks apart and 1:1 follow-up two weeks later. Participants attended in small groups of 7-8 plus partners and had access to a diabetes nurse helpline for support ad hoc. Data were collected at baseline and at months 1, 3 and 6 for time in range, time spent in the high, very high, low and very low ranges, glucose management indicator (GMI) and variability. Anecdotal quality of life statements were collected from the patients at their 1:1 follow-up and subsequent reviews.
Results: Baseline time in range (TIR) (3.9-10mmol/L) was 53.13% (range 16-88%) and had improved by 11.74% to 64.87% (range 40-89%, p=0.004) at 6 months. High range 27.53% (range 7-47%) improved to 23.4% (range 10-37%) very high range 15.8% (range 1-60%) improved to 10.13% (range 0-27%), low range 2.4% (range 0-8%, p=0.035) improved to 1.07% (range 0-4%), very low range 0.53% (range 0-2%) improved to 0.2%. GMI 7.51% (range 6.4-10%) improved to 7.29% (range 6.4-8.3%), variability 37.13% (range 29-48%) improved to 34.32% (range 26.9-40.8%). At baseline 60% of patients were achieving a target of GMI <7%, which increased to 66% at 6 months. For variability 44% were achieving target of <36% at baseline and this increased to 77% at 6 months.
Quality of life comments included positive changes in weight, being able to come off the renal transplant list, feeling happier and more confident, feeling confident to learn to drive, diabetes not at the front of my mind all the time, more relaxed. Adverse events recorded were a right eye haemorrhage (existing eye disease) and a miscarriage.
Conclusion: The Omnipod 5 system has shown clinically significant improvements in glycaemic parameters as well as improvements in quality of life. The structure of 2x 1.5hr group sessions followed by 1x30min 1:1 follow-up session was well received by patients and was a time-efficient method of delivery.

Abstract ID: 3491

Glucocorticoid-induced diabetes among adults hospitalised in the Oxford University Hospitals NHS Foundation Trust: a matched cohort study

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Background: Systemic glucocorticoids are commonly used in hospitalised patients and can cause new-onset diabetes. This study aimed to: 1) estimate the incidence rate ratio (IRR) of new-onset diabetes arising during time exposed vs unexposed to systemic glucocorticoids; 2) compare the length of stay (LOS) between those who developed new-onset diabetes vs. those who did not after receiving systemic glucocorticoids; and 3) identify clinical and demographic risk factors for developing new-onset diabetes.
Methods: We conducted an observational cohort study using data from the electronic healthcare records of 528,787 adult (age≥18 years) inpatients from the Oxford University Hospitals NHS Foundation Trust admitted between 1 January 2013 and 1 October 2023. We excluded patients with known diabetes and those on systemic glucocorticoids on admission. Of the included 451,606 patients, 17,258 (3.8%) received systemic glucocorticoids. We used data from the first admission during the period.
Objective 1: IRR
Cohort 1: Adults without diabetes at baseline
Exposure was defined as having a prescription of prednisolone>5mg daily or equivalent during admission. Outcome was new-onset diabetes, defined as documentation of new glucose-lowering therapy, coded diagnosis of new diabetes or random venous blood glucose ≥11.1mmol/L at any time during hospitalisation. We fitted Poisson regression models to estimate the IRR (95% CI) of new-onset diabetes arising during exposed time vs. non-exposed time measured in days and later converted to years. Patients were considered non-exposed until the first prescription for systemic glucocorticoids. The end date of exposure was defined as the date of the last prescription for glucocorticoids plus 15 days or discharge date if the 15-day mark was after discharge. Follow-up time during non-exposure periods started on the day of prescription of the matched individual during the exposure period.
Objective 2: LOS
Cohort 2: Adults without diabetes at baseline who received systemic glucocorticoids during hospital admission
We compared median (IQR) LOS for those who developed new-onset diabetes vs those who did not using negative binomial regression to assess the effects of developing new-onset diabetes vs not developing on LOS.
Objective 3: Risk factors for new-onset diabetes in people treated with systemic glucocorticoids
We used Cohort 2 as the analysis population. Clinical factors included cumulative glucocorticoid dose (mg) category [> 0–959.9 (reference), 960–3054.9 and ≥ 3055)], COVID-19 status [yes/no (reference)], indication category for glucocorticoids [malignant (reference), autoimmune/inflammatory/infection, and other] and body weight (kg) as a continuous variable. Demographic factors included age in years (continuous), sex

[male (reference)/female] and ethnicity [White (reference), African, Asian, other, not stated]. First, we used backward elimination to select explanatory variables for the final model (p=0.2 threshold). Next, we used Poisson regression and a likelihood ratio test (p=0.2 threshold) as a confirmatory method to identify clinical and demographic risk factors for new-onset diabetes.

Results

Objective 1: IRR

Of the included 451,606 patients, 3,746 (0.8%) developed new-onset diabetes. Of 17,258 patients who received systemic glucocorticoids, 316 (1.8%) developed new-onset diabetes (609.27 person-years) vs 3,430 (0.8%) among 434,348 patients (18510.52 person-years) who did not receive systemic glucocorticoids. The crude and age- and sex-adjusted IRRs (95% CI) for new-onset diabetes associated with glucocorticoids were 2.80 (2.40-3.05) and 2.60 (2.40-2.90), respectively.

Objective 2: LOS

Median (IQR) LOS was 9.0 days (4.5-22.0) in those who developed new-onset diabetes vs 3.0 days (2.0-8.0) in those who did not. Negative binomial regression model showed that the ratio of estimated mean LOS for those who developed new-onset diabetes vs to those who did not was 2.4 (95%CI 2.1-2.7), p<0.001, and 1.6 (1.1-2.0), p=0.011 after adjusting for the number of comorbidities.

Objective 3: Risk factors for new-onset diabetes in people treated with systemic glucocorticoids

All considered factors except COVID-19 status were selected to enter the final Poisson model. In this final model, all selected factors except sex remained significant with RR (95% CI): age 1.02 (1.01-1.03) per year increase, ethnicity [1.72 (1.04-2.86) for Asian vs White, 1.76 (1.05-2.95) for other vs White, 1.26 (1.05-2.70) for not stated vs White], body weight 1.01 (1.01-1.03) per kg increase, indication category [2.15 (1.21-3.52) for autoimmune/inflammatory/infection vs. malignant, 2.11 (1.18-4.20) for other vs malignant], and cumulative glucocorticoid dose category [3.04 (2.34-3.95) for ≥3055 mg vs >0-959.9 mg].

Conclusion: Our data show that exposure to systemic glucocorticoids during hospitalisation increases the risk of new-onset diabetes 2.6 times compared to non-exposure after adjusting for age and sex. We demonstrated that among inpatients treated with systemic glucocorticoids, LOS was significantly higher in those who developed new-onset diabetes vs those who did not, which may reflect an increased opportunity to detect diabetes or more concerns resulting from newly diagnosed diabetes. Higher age, higher weight, Asian or other non-White ethnicity and higher cumulative dose of glucocorticoids were associated with significantly higher risk of new-onset diabetes.