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Diabetes

Current Awareness Bulletin

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General

1. **Cost and utilization of healthcare services for persons with diabetes**

Reynolds E.L., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110983.

[**Aims**: Describe and compare healthcare costs and utilization for insured persons with type 1 diabetes (T1D), type 2 diabetes (T2D), and without diabetes in the United States.]

2.**"I know what I'm supposed to do, but I don't do it": patient-perceived risk factors that lead to their lower extremity amputations**

Ben Chmo M, et al. *Journal of Foot and Ankle Research* 2023;16(1):79.
[**Background**: The purpose of this study is to extend on our previous research by exploring patient-perceived factors that lead to their Lower Extremity Amputations (LEA). LEA are a serious complication of Type 2 Diabetes Mellitus (T2DM), LEA are thought to be preventable with early detection and management of risk factors. Our previous study identified that these factors extend beyond the typical biological and modifiable risk factors and may also extend to patient awareness and competing priorities. Therefore, this research explored these issues in further detail, identifying patient-perceived factors that lead to their LEA.]

3. **Metastases to the thyroid gland: how does this affect cytohistological diagnoses?**

Rossi E.D., Pantanowitz L. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.787-789.

[Metastases to the thyroid gland can present a diagnostic challenge with respect to the cytological and histological evaluation of thyroid lesions. Data from the literature indicates that the rate of metastases to the thyroid gland ranges between 0% and 24% for patients with thyroid nodules in autopsy series, but according to clinical series the reported incidence varies between 0·1% and 3%. 12345 This discrepancy shows that metastatic thyroid lesions are frequently missed or misdiagnosed in their clinical evaluation. Most patients with metastatic thyroid lesions are female and on average 60–70 years old. Metastases might present as a solitary thyroid lesion, multiple nodules, or diffusely involve the thyroid gland.]

4. **Patient-reported outcome measures in diabetes outpatient care: a scoping review**

Torbjørnsen A, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003628

[**Background**: Patient-reported outcome (PRO) measures are increasingly used in clinical diabetes care to increase patient involvement and improve healthcare services. The objectives were to identify instruments used to measure PROs in outpatient diabetes clinics and to investigate the use of these PRO measures alongside the experiences of patients and healthcare personnel in a clinical setting.]

5. **Precision medicine: improving accuracy, reducing error**

The Lancet Diabetes & Endocrinology. *Lancet Diabetes & Endocrinology*, 2023, 11(11), p.783.

[In 1892 William Osler wrote “It is more important to know what kind of a patient the disease has, than to know what kind of a disease the patient has.” Although health-care practices have traditionally followed a one-size-fits-all method, precision medicine aims for a more tailored approach. However, despite much hype on the potential of precision medicine, until now there has been little consensus on its exact definition and clinical relevance. More data does not necessarily mean improved decision making and whether precision medicine can be used for multifactorial conditions, such as obesity and diabetes, is still a matter of debate.]

6. **Serum cystatin C for risk stratification of prediabetes and diabetes populations**

Xiong K, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102882.

[**Background**: The association between serum cystatin C level and vascular outcomes has not been fully elucidated in diabetes and is unclear in prediabetes. We aim to evaluate whether cystatin C level predicts future risk for mortality and vascular outcomes in prediabetes and diabetes.]

7. **Understanding diabetes heterogeneity: key steps towards precision medicine in diabetes**

Leslie R.D., et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.848-860.

[Diabetes is a highly heterogeneous condition; yet, it is diagnosed by measuring a single blood-borne metabolite, glucose, irrespective of aetiology. Although pragmatically helpful, disease classification can become complex and limit advances in research and medical care. Here, we describe diabetes heterogeneity, highlighting recent approaches that could facilitate management by integrating three disease models across all forms of diabetes, namely, the palette model, the threshold model and the gradient model. Once diabetes has developed, further worsening of established diabetes and the subsequent emergence of diabetes complications are kept in check by multiple processes designed to prevent or circumvent metabolic dysfunction. The impact of any given disease risk factor will vary from person-to-person depending on their background, diabetes-related propensity, and environmental exposures. Defining the consequent heterogeneity within diabetes through precision medicine, both in terms of diabetes risk and risk of complications, could improve health outcomes today and shine a light on avenues for novel therapy in the future.]

Children with diabetes

8. **Responses to the Strengths and Difficulties Questionnaire predict HbA1c trajectories in children and adolescents with type 1 diabetes: a population-based study**

Marks K.P., et al. *BMJ Open Diabetes Research and Care* 2023;11:e003479

[**Introduction**: We aimed to determine whether caregiver responses to the Strengths and Difficulties Questionnaire (SDQ) are predictive of HbA1c trajectory membership in children and adolescents with type 1 diabetes, when adjusting for covariates.]

Co-morbidities (find here cardiovascular, kidney disease, neuropathy, diabetic retinopathy etc)

Cardiovascular Disease

9. **Estimated risk of cardiovascular events and long-term complications: The projected future of diabetes patients in Delhi from the DEDICOM-II survey**

Rawat S, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102880.

[**Problem**: Despite high prevalence and ethnic susceptibility, limited published estimates are available on long term complication risks among known diabetes patients in India. Hence, we undertook evaluation of the cardiovascular risk of known diabetes patients from Delhi.]

10. **NT-proBNP and cardiovascular event risk in individuals with prediabetes undergoing cardiovascular evaluation**

Witkowski M, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110923.

[**Aims**: Cardiovascular risk assessment beyond traditional risk factors in subjects with prediabetes is not well-established. Here, we evaluated the utility of N-terminal pro-B-type natriuretic peptide (NT-proBNP) in predicting incident adverse cardiovascular outcomes in prediabetic subjects.]

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11. **A paradigm shift for cardiovascular outcome evaluation in diabetes: Major adverse cardiovascular events (MACE) to major adverse vascular events (MAVE)**

Rastogi A, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102875.

[**Background and aims**: Drugs for diabetes are required to demonstrate cardiovascular safety through CV outcome trials (CVOT). The pre-defined end-points for cardiovascular outcome studies may not be sufficient to capture all clinically relevant atherosclerotic cardio vascular disease (ASCVD) events particularly peripheral arterial disease (PAD).]

12. **Strong independent association between third-degree AV-block and diabetes mellitus using a large database**

Movahed M.R., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110948.

[**Background**: Recent data suggests an association between DM and third-degree AV- Block. The goal of this study was to evaluate the independent association between diabetes and third-degree AV-Block using a very large database.]

13. **Treatment with SGLT2 Inhibitors in Patients with Diabetes Mellitus and Extensive Coronary Artery Disease: Mortality and Cardiovascular Outcomes**

Chipayo-Gonzales D, et al. *Diabetes Therapy* 2023, 14(11): 1853-1865.

[**Introduction**: Sodium-glucose type 2 cotransporter inhibitors (SGLT2-I) have shown solid benefits in reducing cardiovascular mortality and admissions for heart failure in patients with type 2 diabetes mellitus (T2DM) and cardiovascular disease. However, no specific studies exist in patients with high-risk coronary artery disease (CAD).]

14. **Trends of hospitalisation for cardiovascular diseases among people with diabetes in Australia**

Feleke B.E., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110973.

[**Objective**: To describe trends in hospitalisation for subtypes of cardiovascular diseases among people with diabetes.]

Diabetic Neuropathy

15. **Diagnostic accuracy of the 5.07 monofilament test for diabetes polyneuropathy: influence of age, sex, neuropathic pain and neuropathy severity**

Dunker Ø, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003545

[**Introduction**: There is a need for simple and cheap diagnostic tools for diabetic polyneuropathy (DPN). We aimed to assess the diagnostic accuracy of the 5.07/10 g monofilament test in patients referred to polyneuropathy assessments, as well as to examine how disease severity, age, sex and neuropathic pain (NP) impact diagnostic accuracy.]

16. **Is the 10 g monofilament fit for purpose for diagnosing DPN?**

Malik R.A. *BMJ Open Diabetes Research and Care* 2023;11:e003773

[Diabetic peripheral neuropathy (DPN) is causal in the development of foot ulceration and amputation.1 Most guidelines recommend easy-to-use chairside tests such as the 10 g monofilament and neurological examination to assess light touch, proprioception and ankle reflexes for the diagnosis of DPN.2 The 10 g monofilament evaluates large nerve fibers and identifies those with advanced DPN at high risk of diabetic foot ulceration (DFU). However, early diabetic neuropathy is characterized by small fiber damage. 3 4]

17. **Letter to the Editor in response to the letter regarding the article "Neuropathy in adolescents with type 1 diabetes: Confirmatory diagnostic tests, bedside tests, and risk factors"**

Rasmussen V.F. *Diabetes Research and Clinical Practice* 2023, 205: 110949.

[We wish to respond to the received letter.

To Pascaline Cattrysse and Despoina Manousaki,

We appreciate your keen interest in our article and for bringing some issues in Table 3 to our attention.

The authors regret some counting and typographical errors in Table 3. There have been errors in the extraction of some of the count data for the 2 × 2 tables, where a few numbers have been based on previous results due to a missing reading of a code in R. These errors were present in only a few of the results, and they do not alter the main findings of that higher insulin dose per kilogram per day, previous smoking, and higher triglyceride levels were found to increase the relative risk for neuropathy. Remarkably, the relative risk ratio and confidence intervals should be interpreted cautiously due to the small population in the study.]

18. **Novel therapeutical approaches based on neurobiological and genetic strategies for diabetic polyneuropathy – A review**

Sher E.K., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102901.

[**Background**: Neuropathy is among the most often reported consequences of diabetes and the biggest cause of morbidity and mortality in people suffering from this life-long disease. Although different therapeutic methods are available for diabetic neuropathy, it is still the leading cause of limb amputations, and it significantly decreases patients' quality of life.

Aim: This study investigates potential novel therapeutic options that could ameliorate symptoms of DN.]

19. **Serum neurofilament light chain – A potential biomarker for polyneuropathy in type 2 diabetes?**

Määttä L.L., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110988.

[**Aims**: To investigate the relationship between neurofilament light chain (NfL) and the presence and severity of diabetic polyneuropathy (DPN).]

20. **Virtual diagnosis of diabetic nephropathy using metabolomics in place of kidney biopsy: The DIAMOND study**

Kim D.W., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110986.

[**Aims:** To explore the clinical factors and urinary metabolites that predict biopsy-confirmed diabetic nephropathy (DN) in patients with type 2 diabetes mellitus (T2DM).]

Diabetic Retinopathy

21. **Diagnostic accuracy of smartphone-based artificial intelligence systems for detecting diabetic retinopathy: A systematic review and meta-analysis**

Hasan S.U., Siddiqui M.A.R. *Diabetes Research and Clinical Practice* 2023, 205: 110943.

[**Aims**: Diabetic retinopathy (DR) is a major cause of blindness globally, early detection is critical to prevent vision loss. Traditional screening that, rely on human experts are, however, costly, and time-consuming. The purpose of this systematic review is to assess the diagnostic accuracy of smartphone-based artificial intelligence(AI) systems for DR detection.]

22. **Ethnic disparities in progression rates for sight-threatening diabetic retinopathy in diabetic eye screening: a population-based retrospective cohort study**

Olvera-Barrios A, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003683

[**Introduction**: The English Diabetic Eye Screening Programme (DESP) offers people living with diabetes (PLD) annual eye screening. We examined incidence and determinants of sight-threatening diabetic retinopathy (STDR) in a sociodemographically diverse multi-ethnic population.]

Kidney Disease

23. **Association of eGFR slope with all-cause mortality, macrovascular and microvascular outcomes in people with type 2 diabetes and early-stage chronic kidney disease**

Jin Q, Lam C.L.K., Wan E.Y.F. *Diabetes Research and Clinical Practice* 2023, 205: 110924.

[**Aims**: The association of estimated glomerular filtration rate (eGFR) slope with progression of complications in people with type 2 diabetes (T2D) and early-stage chronic kidney disease (CKD) is less clear.]

24. **Letter to the Editor: Comment on "Utility of non-invasive liver fibrosis markers to predict the incidence of chronic kidney disease (CKD): A systematic review, meta-analysis, and meta-regression" by Supriyadi et al**

Wang Z, Li L, Jiang Y. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102879.

[We would like to acknowledge the contribution of the meta-analysis by Supriyadi et al. [1] to highlight the utility of liver fibrosis scoring for predicting chronic kidney dysfunction (CKD). Due to the lack of reliable clinical predictive models for CKD progression in patients, the timely identification of high-risk individuals is hindered, resulting in missed opportunities for appropriate interventions. In light of this, the article presents a novel approach to non-invasive diagnosis of CKD, which has sparked our great interest. Besides, the article takes into account factors such as age and diabetes, which themselves influence the occurrence of CKD. Nevertheless, the following points necessitate in-depth exploration.]

Complications (find here atherosclerosis, claudication, diabetic foot, ulcers etc)

General

25.**Advances in cystic fibrosis-related diabetes: Current status and future directions**

Lurquin F, Buysschaert M, Preumont V. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102899.

[**Aims**: The aim of this review is to give an update of the recent advances in the pathophysiology, prognosis, diagnosis and treatments of cystic fibrosis-related diabetes (CFRD).]

26. **Association of BMI and waist circumference with diabetic microvascular complications: A prospective cohort study from the UK Biobank and Mendelian randomization analysis**

Huang Y, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110975.

[**Aims**: To investigate the precise association between BMI and waist circumference (WC) and diabetic complications, including retinopathy (DR), nephropathy (DN) and peripheral neuropathy (DPN).]

27. **Edentulism in diabetics compared to non-diabetics**

The Dental Elf; 2023.
https://www.nationalelfservice.net/dentistry/periodontal-disease/edentulism-diabetics-compared-non-diabetics/?utm_source=rss&utm_medium=rss&utm_campaign=edentulism-diabetics-compared-non-diabetics

[Diabetes mellitus is a common endocrine disease thought to affect more than 500 million people worldwide. Links between diabetes and tooth loss from periodontitis have been reported (Dental Elf –

10th Sep 2021) as well as links with caries (Dental Elf – 11th Sep 2023). The main aim of this review was to assess the evidence related to the prevalence of edentulism among diabetic patients compared to non-diabetic people.]

28. **Effects of advanced glycation end-products, diabetes and metformin on the osteoblastic transdifferentiation capacity of vascular smooth muscle cells: In vivo and in vitro studies**

Molinuevo M.S., Cortizo A.M., Sedlinsky C. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108626.

[**Aims:** Our objective was to study the vascular smooth muscle cells (VSMC) osteoblastic transdifferentiation in AGE exposed cells or those from diabetic animals, and its response to metformin treatment.]

29. **Raising awareness and improving diabetes care to reduce the impact of complications**

Hussain A. *Diabetes Research and Clinical Practice* 2023, 205: 110968.

[It is estimated that more than half a billion people are living with diabetes worldwide. The condition can lead to serious and potentially life-threatening complications. IDF is committed to championing improved education on their impact. The latest figures show that in 2021, approximately 6.7 million adults between the age of 20–79 were estimated to have died as a result of diabetes or its complications. This devastating figure can be reduced with greater awareness and better access to diabetes care and treatment. Earlier this year, the International Diabetes Federation (IDF) conducted research to learn how much people living with diabetes understood about the related complications. We found that over 7 in 10 people we surveyed, from countries across Africa, Asia, Europe and South America, had discovered their condition only after experiencing a complication. This underscores the urgent need for enhanced awareness and education about the condition and its potential consequences. We mark World Diabetes Day every year on November 14 to address this need and promote concerted action to address diabetes as a serious threat to global health.]

Diabetic Foot

30. **Artificial intelligence for automated detection of diabetic foot ulcers: A real-world proof-of-concept clinical evaluation**

Cassidy B, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110951.

[**Objective**: Conduct a multicenter proof-of-concept clinical evaluation to assess the accuracy of an artificial intelligence system on a smartphone for automated detection of diabetic foot ulcers.]

31. **Unraveling shared risk factors for diabetic foot ulcer: a comprehensive Mendelian randomization analysis**

Yin K, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003523

[**Introduction**: Diabetic foot ulcer (DFU) stands as a severe diabetic lower extremity complication, characterized by high amputation rates, mortality, and economic burden. We propose using Mendelian randomization studies to explore shared and distinct risk factors for diabetic lower extremity complications.]

Diabetic Ketoacidosis

32. **Awareness and knowledge of diabetic ketoacidosis in people with type 1 diabetes: a cross-sectional, multicenter survey**

Hepprich M, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003662

[**Introduction**: To evaluate awareness and knowledge of diabetic ketoacidosis (DKA), a common and potentially life-threatening complication in people living with type 1 diabetes (T1D).]

33. **Paediatric new onset type 1 diabetes and diabetic ketoacidosis during the COVID-19 pandemic in Malaysia**

Lee Y.L., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110981.

[**Aims**: Despite emerging evidence of increased paediatric diabetes mellitus (DM) and diabetic ketoacidosis (DKA) worldwide following the COVID-19 pandemic, studies in Asia are lacking. We aimed to determine the frequency, demographics, and clinical characteristics of new onset type 1 DM (T1DM) during the pandemic in Malaysia.]

Diabetes and pregnancy

34. **Advances in diabetes management: have pregnancy outcomes in women with type 1 diabetes changed in the last decades?**

Citro F, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110979.

[**Aims**: Over the recent years multiple therapeutic and management opportunities have been made available to treat pregnant women with Type 1 diabetes (T1DM). However, analyses assessing whether these different approaches may have any specific advantage/disadvantage in metabolic control and neonatal outcomes is still limited. The aim of this study was to compare metabolic control and neonatal outcomes in pregnant women with T1DM among different basal insulins (NPH vs. analogue), insulin administration ways [Multiple Daily Injections (MDI) vs. Continuous Subcutaneous Insulin Infusion (CSII)] and glucose monitoring systems [Self-Monitoring of Blood Glucose (SMBG) vs. real-time/intermittently scanned Continuous Glucose Monitoring (rtCGM/isCGM)].]

35. **The effects of a couple-based gestational diabetes mellitus intervention on self-management and pregnancy outcomes: A randomised controlled trial**

Guo M, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110947.

[**Aims**: To estimate the effectiveness of the Couples Coping with Gestational Diabetes Mellitus (GDM) Programme on GDM self-management and pregnancy outcomes.]

36. **Faster-acting insulin aspart versus insulin aspart in the treatment of type 1 or type 2 diabetes during pregnancy and post-delivery (CopenFast): an open-label, single-centre, randomised controlled trial**

Nørgaard S.K., et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.811-821.

[**Background**: Faster-acting insulin aspart (faster aspart) is considered safe for use during pregnancy and breastfeeding but has not been evaluated in this population. We aimed to evaluate the effect of faster aspart versus insulin aspart on fetal growth, in women with type 1 or type 2 diabetes during pregnancy and post-delivery.]

37. **Faster and faster: meeting the challenges of delayed insulin action during pregnancy**

Feig D.S. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.785-787.

[Pregnant women with diabetes continue to have adverse pregnancy outcomes that are often related to hyperglycaemia. 1 Tight glycaemic control has been recommended to reduce these adverse outcomes, but it is difficult to achieve these tight glycaemic targets. Part of the reason for this is the difficulty of matching exogenous insulin with glucose excursions, not only because of the difficulty estimating carbohydrate content in foods, but also the difficulty in matching the timing of insulin action with glucose excursions.]

38. **Preconception SGLT2 or DPP4 inhibitor use and adverse pregnancy outcomes**

Ray J.G., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110946.

[**Aims**: To compare preconception use of sodium-glucose cotransporter-2 (SGLT2i) and dipeptidyl peptidase-4 (DPP4i) inhibitors to sulfonylurea agents, and associated peri -conceptional A1c concentration, and risk of pregnancy loss and congenital anomalies.]

39. **Use of fasting plasma glucose to determine the approach for diagnosing gestational diabetes mellitus**

Metzger B.E., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110952.

[**Aims**: Estimate the impact of OGTTs only on women with a screening FPG of 4.5–5.0 mmol/L using data from HAPO.]

Diabetes mellitus Type 1

40. **Advances in diabetes management: have pregnancy outcomes in women with type 1 diabetes changed in the last decades?**

Citro F, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110979.

[**Aims**: Over the recent years multiple therapeutic and management opportunities have been made available to treat pregnant women with Type 1 diabetes (T1DM). However, analyses assessing whether these different approaches may have any specific advantage/disadvantage in metabolic control and neonatal outcomes is still limited. The aim of this study was to compare metabolic control and neonatal outcomes in pregnant women with T1DM among different basal insulins (NPH vs. analogue), insulin administration ways [Multiple Daily Injections (MDI) vs. Continuous Subcutaneous Insulin Infusion (CSII)] and glucose monitoring systems [Self-Monitoring of Blood Glucose (SMBG) vs. real-time/intermittently scanned Continuous Glucose Monitoring (rtCGM/isCGM)].]

41. **Assessing Time in Range with Postprandial Glucose-Focused Titration of Ultra Rapid Lispro (URLi) in People with Type 1 Diabetes**

Bergenstal R.M., et al. *Diabetes Therapy* 2023, 14(11): 1933-1945.

[**Introduction**: To assess time in range (TIR) (70-180 mg/dL) with postprandial glucose (PPG)-focused titration of ultra rapid lispro (URLi; Lyumjev®) in combination with insulin degludec in people with type 1 diabetes (T1D).]

42. **Awareness and knowledge of diabetic ketoacidosis in people with type 1 diabetes: a cross-sectional, multicenter survey**

Hepprich M, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003662

[**Introduction**: To evaluate awareness and knowledge of diabetic ketoacidosis (DKA), a common and potentially life-threatening complication in people living with type 1 diabetes (T1D).]

43. **Baseline plasma proinsulin response to glucose for predicting therapeutic response to otelixizumab in recent-onset type 1 diabetes**

Desouter A.K., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110974.

[**Aims**: In recent-onset type 1 diabetes, clamp-derived C-peptide predicts good response to anti-CD3. Elevated proinsulin and proinsulin/C-peptide ratio (PI/CP) suggest increased metabolic/inflammatory beta cell burden. We reanalyzed trial data to compare the ability of baseline acutely glucose-stimulated proinsulin, C-peptide and PI/CP to predict functional outcome.]

44. **Central nervous system microstructural alterations in Type 1 diabetes mellitus: A systematic review of diffusion Tensor imaging studies**

Dolatshahi M, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110645.

[**Aims**: Type 1 diabetes mellitus (T1DM) is a chronic childhood disease with potentially persistent CNS disruptions. In this study, we aimed to systematically review diffusion tensor imaging studies in patients with T1DM to understand the microstructural effects of this entity on individuals' brains.]

45. **Paediatric new onset type 1 diabetes and diabetic ketoacidosis during the COVID-19 pandemic in Malaysia**

Lee Y.L., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110981.

[**Aims**: Despite emerging evidence of increased paediatric diabetes mellitus (DM) and diabetic ketoacidosis (DKA) worldwide following the COVID-19 pandemic, studies in Asia are lacking. We aimed to determine the frequency, demographics, and clinical characteristics of new onset type 1 DM (T1DM) during the pandemic in Malaysia.]

46. **Safety and performance of a hybrid closed-loop insulin delivery system with carbohydrate suggestion in adults with type 1 diabetes prone to hypoglycemia**

Mesa A, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110956.

[**Aims**: To evaluate the safety and performance of a hybrid closed-loop (HCL) system with automatic carbohydrate suggestion in adults with type 1 diabetes (T1D) prone to hypoglycemia.]

47. **Time for changes in type 1 diabetes intervention trial designs**

Atkinson M.A., et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.789-791.

[With the realisation that type 1 diabetes represents an autoimmune disorder, dozens of clinical trials have been performed over the past four decades aiming to preserve the metabolic function of the remaining insulin-producing islet β cells in people recently diagnosed with the disorder. 1 These trials have used drugs intended to attenuate the deleterious immune response. Typically, during a specified period following immune intervention, stimulated C-peptide production is measured to evaluate the functional β-cell capacity, representing the gold standard for assessing therapeutic efficacy. This method of monitoring is based on an established and impressive body of evidence, showing that even low residual serum C-peptide concentrations in patients with type 1 diabetes are associated with a marked risk reduction for disease-associated complications. 2 Additional metabolic and clinical endpoints considered to represent short-term therapeutic benefits have been and continue to be evaluated (eg, reduction in hypoglycaemic events, reduced insulin requirements, and improved time in range). 3]

Diabetes mellitus Type 2

48. **Asprosin, a novel glucogenic adipokine implicated in type 2 diabetes mellitus**

Diao H, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108614.

[Asprosin, encoded by penultimate two exons (exon 65 and exon 66) of the gene Fibrillin 1 (FBN1), has been recently discovered to be a novel hormone secreted by white adipose tissues during fasting. The glucose metabolism disorders are often accompanied by increased asprosin level. Previous research suggests that asprosin may contribute to the development of diabetes by regulating glucose homeostasis, appetite, insulin secretion, and insulin sensitivity. In this review, we summarize the recent findings from studies on asprosin and its association with Type 2 diabetes mellitus, and discusses its mechanisms from various aspects, so as to provide clinical diagnosis and treatment ideas for T2DM.]

49. **Associations between insulin-like growth factor binding protein-2 and insulin sensitivity, metformin, and mortality in persons with T2D**

Hjortebjerg R, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110977.

[**Aims**: Serum insulin-like growth factor binding protein-2 (IGFBP-2) is low in persons with type 2 diabetes mellitus (T2D) and possibly regulated by metformin. Counter-intuitively, high IGFBP-2 associates with mortality. We investigated the association between IGFBP-2, metformin-treatment, and indices of insulin sensitivity, and assessed IGFBP-2 in relation to prior comorbidity and mortality during five-year follow-up.]

50. **Comparison of beta-cell function between Hong Kong Chinese with young-onset type 2 diabetes and late-onset type 2 diabetes**

Fan Y, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110954.

[**Aims**: We compared beta-cell function in Chinese with type 2 diabetes diagnosed at age < 40 years (young-onset diabetes, YOD) and ≥ 40 years (late-onset diabetes, LOD).]

51. **The correlation between visceral fat/subcutaneous fat area ratio and monocyte/high-density lipoprotein ratio in patients with type 2 diabetes mellitus and albuminuria**

Lin H, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108521.

[**Objective**: This study aims to observe the correlation between the visceral fat/subcutaneous fat area ratio (VSR) and peripheral blood monocyte/high-density lipoprotein ratio (MHR) in patients with type 2 diabetes mellitus (T2DM) and albuminuria.]

52. **Dipeptidyl peptidase-4 inhibitors and the risk of skin cancer among patients with type 2 diabetes: a UK population-based cohort study**

Pradhan R, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003550

[**Introduction**: The dipeptidyl peptidase-4 (DPP-4) enzyme significantly influences carcinogenic pathways in the skin. The objective of this study was to determine whether DPP-4 inhibitors are associated with the incidence of melanoma and nonmelanoma skin cancer, compared with sulfonylureas.]

53. **Effects of body weight variability on risks of macro- and microvascular outcomes in individuals with type 2 diabetes: The Rio de Janeiro type 2 diabetes cohort**

Cardoso C.R.L., Leite N.C., Salles G.F. *Diabetes Research and Clinical Practice* 2023, 205: 110992.

[**Aims**: To investigate the effects of body weight variability (BWV) on macro- and microvascular outcomes in a type 2 diabetes cohort.]

54. **Efficacy and Safety of a Biosimilar Liraglutide (Melitide®) Versus the Reference Liraglutide (Victoza®) in People with Type 2 Diabetes Mellitus: A Randomized, Double-Blind, Noninferiority Clinical Trial**

Esteghamati A, et al. *Diabetes Therapy* 2023, 14(11): 1889-1902.

[**Introduction**: Liraglutide effectively controls blood glucose level and reduces body weight. The aim of this study was to compare the efficacy and safety of a biosimilar liraglutide (Melitide®; CinnaGen, Tehran, Iran) to the reference liraglutide (Victoza®; Novo Nordisk, Bagsvaerd, Denmark) in people with type 2 diabetes mellitus (T2DM).]

55. **Explaining the high rate of progression from prediabetes to type 2 diabetes in China**

Chu N, et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), p.794.

[We read with interest the report on the China Diabetes Prevention Program (CDPP) by Lihui Zhang and colleagues, 1 a 2-year open-label randomised controlled trial of metformin plus lifestyle intervention versus lifestyle intervention alone in individuals with impaired glucose regulation in China. Impaired glucose regulation was defined as impaired fasting glycaemia or impaired glucose tolerance, or both. In this study, the risk of new-onset type 2 diabetes was reduced by 17% in the metformin plus lifestyle intervention group versus the lifestyle intervention alone group. Despite this encouraging result,

we are concerned by the high incidence of diabetes in both groups (metformin plus lifestyle intervention: 17·27 per 100 person-years; lifestyle intervention alone: 19·83 per 100 person-years) over a median follow-up of 2·4 years. This incidence exceeded that in the control group in the Da Qing study (15·7 per 100 person-years), 2 the US Diabetes Prevention Program (11·0 per 100 person-years), 3 or the Finnish Diabetes Prevention Study (7·8 cases per 100 person-years). 4]

56. **Explaining the high rate of progression from prediabetes to type 2 diabetes in China – Authors' reply**

Zhang L, et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.794-795.

[In our recent Article, 1 we reported that metformin plus lifestyle intervention was more effective than the lifestyle intervention alone in preventing progression to diabetes in participants with impaired glucose regulation. Our study 1 confirmed the high rate of progression from prediabetes to type 2 diabetes reported in the Da Qing diabetes prevention study. 2 Although we realise the urgency of implementing powerful diabetes prevention in China, we are pleased that our findings have attracted attention; first from the author of the Comment, Clifford J Bailey, 3 and now from Elaine Chow and colleagues in a Correspondence.]

57. **Glycaemic Control and Weight Reduction: A Narrative Review of New Therapies for Type 2 Diabetes**

Vázquez L.A., et al. *Diabetes Therapy* 2023, 14(11): 1771-1784.

[Early and intensive treatment of type 2 diabetes (T2D) has been associated with lower risk of diabetes-related complications. Control of overweight and obesity, which are strongly associated with T2D and many of its complications, is also key in the management of the disease. New therapies allow for individualised glycaemic control targets with greater safety. Thus, in patients with a higher cardiovascular and renal risk profile, current guidelines encourage early treatment with metformin together with glucagon-like peptide-1 receptor agonists (GLP-1 RAs) and sodium-glucose co-transporter-2 inhibitors with proven cardiovascular benefit. GLP-1 RAs combine highly efficacious glucose-lowering activity with a reduced risk of hypoglycaemia. Recently, tirzepatide, a first-in-class drug that activates both glucose-dependent insulinotropic polypeptide and GLP-1 receptors, has demonstrated very high efficacy in glycated haemoglobin (HbA1c) and weight reduction in clinical trials. Tirzepatide has the potential to help people with T2D reach recommended glycaemic and weight targets (HbA1c < 7% and > 5% weight reduction) and to allow some patients to reach HbA1c measurements close to normal physiological levels and substantial weight reduction. In 2022, tirzepatide was approved by the US Food and Drug Administration and the European Medicines Agency for treatment of people with T2D and is currently in development for chronic weight management.]

58. **Inequalities in healthcare utilisation among adults with type 2 diabetes**

Hessain D, Andersen A, Fredslund E.K. *Diabetes Research and Clinical Practice* 2023, 205: 110982.

[**Aims**: To examine inequality in dentist, ophthalmologist, and podiatrist attendance among adults with type 2 diabetes in a country with varying degrees of co-payment.]

59. **A Longitudinal Clinical Trajectory Analysis Examining the Accumulation of Co-morbidity in People with Type 2 Diabetes (T2D) Compared with Non-T2D Individuals**

Heald A, et al. *Diabetes Therapy* 2023, 14(11): 1903-1913.

[**Background**: Type 2 diabetes mellitus (T2D) is commonly associated with an increasing complexity of multimorbidity. While some progress has been made in identifying genetic and non-genetic risk factors for T2D, understanding the longitudinal clinical history of individuals before/after T2D diagnosis may provide additional insights.]

60. **Medical expenditure trajectory and HbA1c progression prior to and after clinical diagnosis of type 2 diabetes in a commercially insured population in the USA**

Pagán L, et al. *BMJ Open Diabetes Research and Care* 2023;11:e003397

[**Introduction**: Medical expenditures of individuals with type 2 diabetes escalate before clinical diagnosis. How increases in medical expenditures are related to glucose levels remains unclear. We examined changes in HbA1c and medical expenditures in years prior to and shortly after type 2 diabetes diagnosis.]

61.**Precision medicine of obesity as an integral part of type 2 diabetes management – past, present, and future**

Szczerbinski L, Florez J.C. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.861-878.

[Obesity is a complex and heterogeneous condition that leads to various metabolic complications, including type 2 diabetes. Unfortunately, for some, treatment options to date for obesity are insufficient, with many people not reaching sustained weight loss or having improvements in metabolic health. In this Review, we discuss advances in the genetics of obesity from the past decade—with emphasis on developments from the past 5 years—with a focus on metabolic consequences, and their potential implications for precision management of the disease. We also provide an overview of the potential role of genetics in guiding weight loss strategies. Finally, we propose a vision for the future of precision obesity management that includes developing an obesity-centred multidisease management algorithm that targets both obesity and its comorbidities. However, further collaborative efforts and research are necessary to fully realise its potential and improve metabolic health outcomes.]

62. **Prevalence and associated factors of female sexual dysfunction among type 2 diabetes patients in Indonesia: A systematic review and meta-analysis**

Pasaribu A, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102878.

[**Background and aims**: Female sexual dysfunction (FSD) is a neglected chronic complication of diabetes. However, there is a scarcity of data in Indonesia, which is currently ranked as the 5th in the world for the number of people with Type 2 Diabetes (T2D). Our study aims to analyze the prevalence and factors of FSD among T2D patients in Indonesia.]

63. **Promoting kidney health in people with type 2 diabetes: part 1**
Murphy F, Byrne G. *British Journal of Nursing* 2023;32(18):874-880.
[The incidence of chronic kidney disease is increasing internationally with risk factors for the condition being the same as those for type 2 diabetes. It is important therefore for nurses to use primary, secondary and tertiary prevention to minimise the incidence of chronic kidney disease when caring for individuals with type 2 diabetes. This article is the first of a two-part series on the interrelationship between these long-term conditions.]

64. **Promoting kidney health in people with type 2 diabetes: part 2**
Murphy F, Byrne G. *British Journal of Nursing* 2023;32(20):964-971.
[The incidence of chronic kidney disease is increasing internationally with many risk factors for chronic kidney disease also being risk factors for type 2 diabetes. Nurses should use primary, secondary and tertiary prevention to minimise the incidence of chronic kidney disease when caring for individuals with type 2 diabetes. This article is the second in a two-part series on the interrelationship between these long-term conditions. Part 1 addressed the significance of using primary prevention to promote kidney health in adults living with type 2 diabetes; part 2 will discuss the use of secondary and tertiary prevention relevant to these long-term conditions.]

65. **The role of heat shock proteins (HSPs) in type 2 diabetes mellitus pathophysiology**

Esmaeilzadeh A, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108564.

[Type 2 diabetes mellitus (T2DM) is a metabolic disorder characterized by sustained hyperglycemia caused by impaired insulin signaling and secretion. Metabolic stress, caused by an inappropriate diet, is one of the major hallmarks provoking inflammation, endoplasmic reticulum (ER) stress, and mitochondrial dysfunction. Heat shock proteins (HSPs) are a group of highly conserved proteins that

have a crucial role in chaperoning damaged and misfolded proteins to avoid disruption of cellular homeostasis under stress conditions. To do this, HSPs interact with diverse intra-and extracellular pathways among which are the insulin signaling, insulin secretion, and apoptosis pathways. Therefore, HSP dysfunction, e.g. HSP70, may lead to disruption of the pathways responsible for insulin secretion and uptake. Consistently, the altered expression of other HSPs and genetic polymorphisms in HSP-producing genes in diabetic subjects has made HSPs hot research in T2DM. This paper provides a comprehensive overview of the role of different HSPs in T2DM pathogenesis, affected cellular pathways, and the potential therapeutic strategies targeting HSPs in T2DM.]

66. **Shifts in KDIGO CKD risk groups with empagliflozin: Kidney-protection from SGLT2 inhibition across the spectrum of risk**

Weingold R, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108628.

[T2D is a well-established risk factor for development and progression of CKD. KDIGO recommends categorization of risk by likelihood of progression to ESKD. Compared to placebo, empagliflozin decreases likelihood of worsening (OR 0.70, 95 % CI 0.62–0.78) and increases likelihood of improvement (OR 1.56, 95 % CI 1.30–1.86) in KDIGO risk category.]

67.**Simplification of Complex Insulin Regimens with IdegLira in People with Type 2 Diabetes: Literature Review and Clinical Recommendations**

Builes-Montaño C, et al. *Diabetes Therapy* 2023, 14(11): 1959-1976.

[**Introduction**: This study developed a simple algorithm based on clinical results described in medical literature and which allows one to simplify complex insulin regimes with IdegLira to avoid adverse events related to the complexity of some insulin treatments.]

68.**A systematic review exploring the mechanisms by which citrus bioflavonoid supplementation benefits blood glucose levels and metabolic complications in type 2 diabetes mellitus**

Gupta A, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102884.

[**Background**: Citrus bioflavonoids are polyphenolic compounds that are derived from citrus fruits and vegetables. Although they are well known for their powerful antioxidant properties, their effects on glycemic control are not well understood. This review aims to highlight the potential benefits of using citrus bioflavonoids in patients with type 2 diabetes mellitus and its metabolic complications, as well as the medicinal effects of known subclasses of naturally occurring citrus bioflavonoids.]

69.**Trends in all-cause mortality among adults with diagnosed type 2 diabetes in West Malaysia: 2010 – 2019**

Lim L.L., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110944.

[**Aims**: We determined 10-year all-cause mortality trends in diagnosed type 2 diabetes (T2D) population in West Malaysia, a middle-income country in the Western-Pacific region.]

70. **Utilization and impact of SLGT2 inhibitors among diabetes patients in a nationally representative survey: Findings from NHANES 2013–2020**

Shen T.H., Farley J.F. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108625.

[**Background and aims:** The purpose of this study is to examine patterns of utilization for antidiabetic medications among a nationally representative sample of the US population following the introduction of SGLT2 inhibitors in 2013.]

Diagnosis

71. **Molecular diagnosis in patients with monogenic diabetes mellitus, and detection of a novel candidate gene**

Goksen D, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110953.

[**Aim:** We aimed to investigate molecular genetic basis of monogenic diabetes (DM) and novel responsible candidate genes with targeted Next Generation Sequencing (NGS) and Whole Exome Sequencing (WES).]

Glucose monitoring and control

72. **Change in testing for blood glucose during the COVID-19 pandemic, United States 2019–2021**

Miyamoto Y, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110985.

[**Aim:** This study assessed changes in testing for blood glucose in the United States (US) from 2019 to 2021.]

73. **Glycaemic Control and Weight Reduction: A Narrative Review of New Therapies for Type 2 Diabetes**

Vázquez L.A., et al. *Diabetes Therapy* 2023, 14(11): 1771-1784.

[Early and intensive treatment of type 2 diabetes (T2D) has been associated with lower risk of diabetes-related complications. Control of overweight and obesity, which are strongly associated with T2D and many of its complications, is also key in the management of the disease. New therapies allow for individualised glycaemic control targets with greater safety. Thus, in patients with a higher cardiovascular and renal risk profile, current guidelines encourage early treatment with metformin together with glucagon-like peptide-1 receptor agonists (GLP-1 RAs) and sodium-glucose co-transporter-2 inhibitors with proven cardiovascular benefit. GLP-1 RAs combine highly efficacious glucose-lowering activity with a reduced risk of hypoglycaemia. Recently, tirzepatide, a first-in-class drug that activates both glucose-dependent insulinotropic polypeptide and GLP-1 receptors, has demonstrated very high efficacy in glycated haemoglobin (HbA1c) and weight reduction in clinical trials. Tirzepatide has the potential to help people with T2D reach recommended glycaemic and weight targets (HbA1c < 7% and > 5% weight reduction) and to allow some patients to reach HbA1c measurements close to normal physiological levels and substantial weight reduction. In 2022, tirzepatide was approved by the US Food and Drug Administration and the European Medicines Agency for treatment of people with T2D and is currently in development for chronic weight management.]

74. **Glycemic variability is associated with diastolic dysfunction in patients with type 2 diabetes**

Dzhun Y, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108519.

[**Aim:** To investigate the relationship between glycemic variability (GV) and diastolic dysfunction in patients with type 2 diabetes mellitus (DM) without coronary artery disease.]

75. **Improved Glycaemic and Weight Management Are Associated with Better Quality of Life in People with Type 2 Diabetes Treated with Tirzepatide**

Boye K.S., et al. *Diabetes Therapy* 2023, 14(11): 1867-1887.

[**Introduction**: Limited data are available on the relationship between quality of life (QoL) change and significant degrees of reduction in glycated haemoglobin (HbA1c) and/or weight loss in people with type 2 diabetes (T2D). We explored the associations between HbA1c targets and/or weight loss achieved and patient-reported outcomes (PROs) in adults with T2D treated with tirzepatide, a first-in-class once weekly glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist, using pooled data from SURPASS-1 to -5 Phase 3 clinical trials.]

76. **Longitudinal trajectories of glycemic control among U.S. Adults with newly diagnosed diabetes**

McCoy R.G., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110989.

[**Aims:** To identify longitudinal trajectories of glycemic control among adults with newly diagnosed diabetes, overall and by diabetes type.]

77. **A systematic review exploring the mechanisms by which citrus bioflavonoid supplementation benefits blood glucose levels and metabolic complications in type 2 diabetes mellitus**

Gupta A, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102884.

[**Background**: Citrus bioflavonoids are polyphenolic compounds that are derived from citrus fruits and vegetables. Although they are well known for their powerful antioxidant properties, their effects on glycemic control are not well understood. This review aims to highlight the potential benefits of using citrus bioflavonoids in patients with type 2 diabetes mellitus and its metabolic complications, as well as the medicinal effects of known subclasses of naturally occurring citrus bioflavonoids.]

78. **Usefulness of glucose management indicator derived from continuous glucose monitoring to assess glycemic condition in hospitalized patients with diabetic kidney disease treated with insulin pumps**

Lu Y, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108613.

[**Background and objective**: This study described the relationship of HbA1c and continuous glucose monitoring (CGM) derived glucose management indicator (CGM-derived GMI) and developed a model to estimate GMI based on clinical parameters (clinical-parameter GMI) for hospitalized DKD treated with insulin pump.]

Hyperglycaemia

79. **The occurrence of Hospital-Acquired Pneumonia is independently associated with elevated Stress Hyperglycaemia Ratio at admission but not elevated blood glucose**

Roberts G, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110955.

[**Background**: The association between stress-induced hyperglycaemia (SIH) and increased infection rates in hospitalised subjects is well-known. It is less clear if SIH at admission independently drives new-onset infections. We assessed the relationship between early exposure at admission to both the Stress Hyperglycaemia Ratio (SHR) and Blood Glucose (BG) with Hospital-Acquired Pneumonia (HAP).]

Hypoglycaemia

80. **The impact of hypoglycaemia on quality of life among adults with type 1 diabetes: Results from "YourSAY: Hypoglycaemia"**

Chatwin H, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108232.

[**Aims**: Research on hypoglycaemia and quality of life (QoL) has focused mostly on severe hypoglycaemia and psychological outcomes, with less known about other aspects of hypoglycaemia (e.g., self-treated episodes) and impacts on other QoL domains (e.g., relationships). Therefore, we examined the impact of all aspects of hypoglycaemia on QoL in adults with type 1 diabetes (T1DM).]

81. **Safety and performance of a hybrid closed-loop insulin delivery system with carbohydrate suggestion in adults with type 1 diabetes prone to hypoglycemia**

Mesa A, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110956.

[**Aims**: To evaluate the safety and performance of a hybrid closed-loop (HCL) system with automatic carbohydrate suggestion in adults with type 1 diabetes (T1D) prone to hypoglycemia.]

82. **Systematic Literature Review and Indirect Treatment Comparison of Three Ready-to-Use Glucagon Treatments for Severe Hypoglycemia**

Giménez M, et al. *Diabetes Therapy* 2023, 14(11): 1757-1769.

[**Introduction**: Ready-to-use glucagon represents a significant advancement in the management of severe hypoglycemia for people with diabetes and their caregivers. This indirect treatment comparison (ITC) evaluated the efficacy and safety differences among the three ready-to-use glucagon treatments, Baqsimi® (nasal glucagon), Gvoke® (glucagon injection) and Zegalogue® (dasiglucagon injection), in adults and children with type 1 diabetes (T1D) or type 2 diabetes (T2D).]

Insulin therapies

83. **Insights from insulin resistance pathways: Therapeutic approaches against Alzheimer associated diabetes mellitus**

Fauzi A, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108629.

[Alzheimer Associated Diabetes Mellitus, commonly known as Type 3 Diabetes Mellitus (T3DM) is a distinct subtype of diabetes with a pronounced association with Alzheimer's disease (AD). Insulin resistance serves as a pivotal link between these two conditions, leading to diminished insulin sensitivity, hyperglycemia, and impaired glucose uptake. The brain, a vital organ in AD context, is also significantly impacted by insulin resistance, resulting in energy deficits and neuronal damage, which are hallmark features of the neurodegenerative disorder. To pave the way for potential therapeutic interventions targeting the insulin resistance pathway, it is crucial to comprehend the intricate pathophysiology of T3DM and identify the overlapped features between diabetes and AD. This comprehensive review article aims to explore various pathway such as AMPK, PPARγ, cAMP and P13K/Akt pathway as potential target for management of T3DM. Through the analysis of these complex mechanisms, our goal is to reveal their interdependencies and support the discovery of innovative therapeutic strategies. The review extensively discusses several promising pharmaceutical candidates that have demonstrated dual drug action mechanisms, addressing both peripheral and cerebral insulin resistance observed in T3DM. These candidates hold significant promise for restoring insulin function and mitigating the detrimental effects of insulin resistance on the brain. The exploration of these therapeutic options contributes to the development of innovative interventions that alleviate the burden of T3DM and enhance patient care.]

84. **Insulin Therapy for the Management of Diabetes Mellitus: A Narrative Review of Innovative Treatment Strategies**

Nkonge K.M., Nkonge D.K., Nkonge T.N. *Diabetes Therapy* 2023, 14(11): 1801-1831.

[The discovery of insulin was presented to the international medical community on May 3, 1922. Since then, insulin has become one of the most effective pharmacological agents used to treat type 1 and type 2 diabetes mellitus. However, the initiation and intensification of insulin therapy is often delayed in people living with type 2 diabetes due to numerous challenges associated with daily subcutaneous administration. Reducing the frequency of injections, using insulin pens instead of syringes and vials, simplifying treatment regimens, or administering insulin through alternative routes may help improve adherence to and persistence with insulin therapy among people living with diabetes. As the world commemorates the centennial of the commercialization of insulin, the aims of this article are to provide an overview of insulin therapy and to summarize clinically significant findings from phase 3 clinical trials evaluating less frequent dosing of insulin and the non-injectable administration of insulin.]

85. **Once-weekly insulin icodec as novel treatment for type 2 diabetes mellitus: A systematic review and *meta* -analysis of randomized clinical trials**

Soetedjo N.N.M., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110984.

[**Aims**: The primary objective of this investigation is to examine the efficacy and safety of insulin icodec when compared to regular basal insulin for the management of type 2 diabetes mellitus (T2DM).]

86. **Optimising Insulin Injection Techniques to Improve Diabetes Outcomes**

Kalra S, et al. *Diabetes Therapy* 2023, 14(11): 1785-1799.

[The effectiveness of therapy in patients with diabetes depends on the correct use of the insulin injection technique. However, despite many established recommendations and evidence that an effective insulin injection technique is essential to improve glycaemic control and minimise the risk associated with diabetes, there is still a need to identify impediments to the insulin injection technique among patients and create awareness among patients and healthcare professionals about the importance of the optimisation of insulin injection techniques. This review focuses on the recent advancements in delivery devices, insulin injection technique teaching methods, monitoring, and complication management and highlights regional best practices and recommendations for optimising injection techniques to improve diabetes outcomes.]

87. **Simplification of Complex Insulin Regimens with IdegLira in People with Type 2 Diabetes: Literature Review and Clinical Recommendations**

Builes-Montaño C, et al. *Diabetes Therapy* 2023, 14(11): 1959-1976.

[**Introduction**: This study developed a simple algorithm based on clinical results described in medical literature and which allows one to simplify complex insulin regimes with IdegLira to avoid adverse events related to the complexity of some insulin treatments.]

88.**Targeting of insulin receptor endocytosis as a treatment to insulin resistance**

Tim B, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108615.

[**Background:** Insulin resistance is the decreased effectiveness of insulin receptor function during signaling of glucose uptake. Insulin receptors are regulated by endocytosis, a process that removes receptors from the cell surface to be marked for degradation or for re-use.

Objectives: Our goal was to discover insulin-resistance-related genes that play key roles in endocytosis which could serve as potential biological targets to enhance insulin sensitivity.]

Management of diabetes (diet, exercise, lifestyle)

89. **Mechanisms of weight loss-induced remission in people with prediabetes: a post-hoc analysis of the randomised, controlled, multicentre Prediabetes Lifestyle Intervention Study (PLIS)**

Sandforth A, et al. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.798-810.

[**Background**: Remission of type 2 diabetes can occur as a result of weight loss and is characterised by liver fat and pancreas fat reduction and recovered insulin secretion. In this analysis, we aimed to investigate the mechanisms of weight loss- induced remission in people with prediabetes.]

90. **Remission of prediabetes via lifestyle intervention**

Bergman M, Dorcely B. *Lancet Diabetes & Endocrinology*, 2023, 11(11), pp.784-785.

[In this issue of *The Lancet Diabetes & Endocrinology*, a post-hoc analysis of the Prediabetes Lifestyle Intervention Study (PLIS) by Sandforth and colleagues 1 provides insights into the physiological mechanisms that govern remission to normal glucose regulation (NGR) from prediabetes. Participants

were classified as responders, defined as people who returned to typical fasting plasma glucose (FPG), typical glucose tolerance, and HbA 1c less than 39 mmol/mol (5·7%) after 12 months of intervention, or non-responders, defined as people who had FPG, post-challenge glucose, or HbA 1c higher than these thresholds. 2 128 (43%) of 298 participants recruited to PLIS who lost 5% or more of their bodyweight at baseline were responders to lifestyle intervention. Whole-body insulin sensitivity increased more in responders than in non-responders (mean at baseline 291 mL/[min × m 2], SD 59, to mean at 12 months 378 mL/[min × m 2], SD 56, vs 278 mL/[min × m 2], 62, to 323 mL/[min × m 2], 66; p<0·0001) and visceral adipose tissue (VAT) decreased more in responders than in non-responders (mean at baseline 6·2 L [SD 2·9] to mean at 12 months 4·1 L [SD 2·3] vs 5·7 L [2·3] to 4·5 L [2·2]; p=0·0003). 2 The risk ratio of responders to progress to type 2 diabetes was 0·27 (95% CI 0·08–0·90). These findings were validated with a cohort of 683 participants from the US Diabetes Prevention Program (DPP). Altogether, the authors showed the feasibility of lifestyle interventions to return to NGR in a population of both sexes.]

Mental health and diabetes

91. **Cognitive frailty in older adults with diabetes: prevalence and risk factors**
Mansoor M, Harrison J, Hill J.E. *British Journal of Community Nursing* 2023;28(11):557-560.
[In older adults living with diabetes, there is a higher prevalence of frailty and a greater risk of cognitive impairment. Cognitive frailty is defined by the presence of both and is associated with an increased risk of mortality. A systematic review was undertaken to estimate the prevalence of cognitive frailty in community-dwelling older adults living with diabetes and associated risk factors. This commentary critically appraises the review and explores the implications of the findings for community practice.]

92. **Depression increases the risk of mortality among people living with diabetes: Results from national health and nutrition examination survey, USA**

Khubchandani J, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102892.

[**Introduction**: Type 2 Diabetes (T2D) and depression are leading global public health problems associated with profound disability and lower quality of life. Extensive evidence suggests that the two disorders are frequently comorbid. However, long-term effects such as the risk of mortality due to depression among people living with T2D are not well explored.]

93. **Elevated risk of developing type 2 diabetes in people with a psychiatric disorder: What is the role of health behaviors and psychotropic medication?**

Lindekilde N, et al. *Journal of Diabetes and Its Complications*, 2023, 37(11), Article 108591.

[**Aims**: Several psychiatric disorders are linked with an increased risk of developing type 2 diabetes (T2D), but the mediating mechanisms are unclear. We aimed to investigate health behaviors, obesity, psychotropic medication use, and comorbidity as potential mediating mechanisms explaining these associations.]

94. **Influence of depression on racial and ethnic disparities in diabetes control**
Breland J.Y., et al. *BMJ Open Diabetes Research and Care* 2023;11:e003612

[**Introduction**: We tested the hypotheses that depression diagnoses influence racial and ethnic disparities in diabetes control and that mental health treatment moderates that relationship.]

95. **Prevalence and incidence of mild cognitive impairment in adults with diabetes in the United States**

Zheng Y, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110976.

[**Background**: Limited evidence exists about the prevalence and incidence of mild cognitive impairment (MCI) in individuals with diabetes in the U.S. We aimed to address such knowledge gaps using a nationally representative study dataset.]

Pharmacological management of diabetes

96. **Assessing Time in Range with Postprandial Glucose-Focused Titration of Ultra Rapid Lispro (URLi) in People with Type 1 Diabetes**

Bergenstal R.M., et al. *Diabetes Therapy* 2023, 14(11): 1933-1945.

[**Introduction**: To assess time in range (TIR) (70-180 mg/dL) with postprandial glucose (PPG)-focused titration of ultra rapid lispro (URLi; Lyumjev®) in combination with insulin degludec in people with type 1 diabetes (T1D).]

97. **Efficacy and Safety of a Biosimilar Liraglutide (Melitide®) Versus the Reference Liraglutide (Victoza®) in People with Type 2 Diabetes Mellitus: A Randomized, Double-Blind, Noninferiority Clinical Trial**

Esteghamati A, et al. *Diabetes Therapy* 2023, 14(11): 1889-1902.

[**Introduction**: Liraglutide effectively controls blood glucose level and reduces body weight. The aim of this study was to compare the efficacy and safety of a biosimilar liraglutide (Melitide®; CinnaGen, Tehran, Iran) to the reference liraglutide (Victoza®; Novo Nordisk, Bagsvaerd, Denmark) in people with type 2 diabetes mellitus (T2DM).]

98. **Glycemic and Economic Outcomes in Elderly Patients with Type 2 Diabetes Initiating Dulaglutide Versus Basal Insulin in a Real-World Setting in the United States: The DISPEL-Advance Study**

Hoog M, et al. *Diabetes Therapy* 2023, 14(11): 1947-1958.

[**Introduction**: Treatments like glucagon-like peptide-1 receptor agonists carry low hypoglycemia risk and are recommended for elderly patients with type 2 diabetes (T2D), while some routine treatments, like insulin, increase hypoglycemia risk. The DISPEL-Advance (Dulaglutide vs Basal InSulin in Injection Naïve Patients with Type 2 Diabetes: Effectiveness in ReaL World) study compared glycemic outcomes, healthcare resource utilization, and costs in elderly patients with T2D who initiated treatment with dulaglutide versus those initiating treatment with basal insulin.]

99. **Improved Glycaemic and Weight Management Are Associated with Better Quality of Life in People with Type 2 Diabetes Treated with Tirzepatide**

Boye K.S., et al. *Diabetes Therapy* 2023, 14(11): 1867-1887.

[**Introduction**: Limited data are available on the relationship between quality of life (QoL) change and significant degrees of reduction in glycated haemoglobin (HbA1c) and/or weight loss in people with type 2 diabetes (T2D). We explored the associations between HbA1c targets and/or weight loss achieved and patient-reported outcomes (PROs) in adults with T2D treated with tirzepatide, a first-in-class once weekly glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist, using pooled data from SURPASS-1 to -5 Phase 3 clinical trials.]

100. **Letter to the Editor regarding "Semaglutide and cancer: A systematic review and meta-analysis" by Nagendra L et al.**

Xiao Y. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2023;17(11): 102895.

[Nagendra and colleagues carried out a wonderful study of meta-analysis [1], and produced the high-quality evidence that semaglutide was not associated with an increased risk of any types of cancer, including pancreatic cancer, and thyroid cancer. These findings are interesting and clinically relevant.

To test whether it is a class effect that glucagon like peptide-1 receptor agonists (GLP1RAs) are not associated with various cancers, I conducted a meta-analysis based on large randomized controlled trials (RCTs) to have assessed the association between GLP1RAs and risks of various neoplasms including various cancers.]

101. **Patient-Reported Outcomes in People with Type 2 Diabetes Receiving Tirzepatide in the SURPASS Clinical Trial Programme**

Boye K.S., et al. *Diabetes Therapy* 2023, 14(11): 1833-1852.

[**Introduction**: Tirzepatide, a novel glucose-dependent insulinotropic polypeptide and glucagon-like peptide 1 receptor agonist, is approved for glycaemic control for people with type 2 diabetes (T2D). The SURPASS-1 to -5 clinical trials assessed the efficacy of once weekly tirzepatide (5, 10 and 15 mg) versus placebo or active comparators (semaglutide 1 mg, insulin degludec and insulin glargine) in T2D. We evaluated patient-reported outcomes (PROs) that measured overall quality of life (QoL), treatment satisfaction and weight-related attributes across the five SURPASS studies.]

102. **Prescribing of evidence-based diabetes pharmacotherapy in patients with metabolic dysfunction-associated steatohepatitis**

Alexopoulos A.S., et al. *BMJ Open Diabetes Research and Care* 2023;11:e003763

[**Introduction**: Metabolic dysfunction-associated steatohepatitis (MASH) is highly prevalent in type 2 diabetes (T2D). Pioglitazone and glucagon-like peptide-1 receptor agonists (GLP-1RA) are medications used in T2D that can resolve MASH and should be considered in all patients with T2D and MASH. We assessed prescription rates of evidence-based T2D pharmacotherapy (EBP) in MASH, and ascertained racial/ethnic disparities in prescribing.]

103. **Probiotic for Pancreatic β-Cell Function in Type 2 Diabetes: A Randomized, Double-Blinded, Placebo-Controlled Clinical Trial**

Savytska M, et al. *Diabetes Therapy* 2023, 14(11): 1915-1931.

[**Introduction**: Many clinical studies have proved the effectiveness of probiotics in metabolic disorders associated with insulin resistance. However, the impact of probiotic therapy on pancreatic β-cell function is ambiguous. The influence of probiotic supplementation vs. placebo on β-cell function in people with type 2 diabetes (T2D) was assessed in a double-blind, single-center, randomized, placebo-controlled trial (RCT).]

104. **Thermal stability and storage of human insulin**

Richter B, Bongaerts B, Metzendorf MI. *Cochrane Database of Systematic Reviews* 2023;11:CD015385.

[**Background**: Health authorities stress the temperature sensitivity of human insulin, advising protection from heat and freezing, with manufacturers suggesting low-temperature storage for intact vials, and once opened, storage at room temperature for four to six weeks, though usage time and maximum temperature recommendations vary. For human insulin, the recommendations of current shelf life in use may range from 10 to 45 days, and the maximum temperature in use varies between 25 °C and 37 °C. Optimal cold-chain management of human insulin from manufacturing until the point of delivery to people with diabetes should always be maintained, and people with diabetes and access to reliable refrigeration should follow manufacturers' recommendations. However, a growing segment of the diabetes-affected global population resides in challenging environments, confronting prolonged exposure to extreme heat due to the climate crisis, all while grappling with limited access to refrigeration.

Objectives: To analyse the effects of storing human insulin above or below the manufacturers' recommended insulin temperature storage range or advised usage time, or both, after dispensing human insulin to people with diabetes.]

Prevention of diabetes (diet, exercise, lifestyle)

105. **Mediterranean diet, type 2 diabetes prevention and healthy ageing: Do we need more evidence?**

Maltese G, et al. *Diabetes Research and Clinical Practice* 2023, 205: 110928.

[We are witnessing an unprecedented escalation of the incidence and prevalence of diabetes worldwide. According to the International Diabetes Federation, in 2021, 537 million people were affected by diabetes, and projections estimate that the number will rise to 783 million by 2045, with 3 in 4 adults living in low- and middle-income countries [1]. Changing this trajectory represents a priority, considering that diabetes accelerates ageing and is one of the leading causes of cardiovascular (CV) and renal disease, cognitive decline, multimorbidity, frailty, and shortened life expectancy, and it imposes a huge economic burden on health care systems [2]. Despite advances in therapies, people with diabetes have their life expectancy decreased by up to 10 years [3].]

106. **Organic food consumption and the incidence of type 2 diabetes mellitus in the Danish Diet, Cancer and Health cohort**

Andersen J.L.M., et al. *Diabetes Research and Clinical Practice* 2023, 205: 110972.

[**Aim**: To investigate the association between organic food consumption and the incidence of type 2 diabetes mellitus.]

107. **Quasi-experimental evaluation of a nationwide diabetes prevention programme**

Lemp J.M., et al. *Nature* 2023, 624, Pages 138–144.

[Diabetes is a leading cause of morbidity, mortality and cost of illness1,2. Health behaviours, particularly those related to nutrition and physical activity, play a key role in the development of type 2 diabetes mellitus3. Whereas behaviour change programmes (also known as lifestyle interventions or similar) have been found efficacious in controlled clinical trials4,5, there remains controversy about whether targeting health behaviours at the individual level is an effective preventive strategy for type 2 diabetes mellitus6 and doubt among clinicians that lifestyle advice and counselling provided in the routine health system can achieve improvements in health7,8,9. Here we show that being referred to the largest behaviour change programme for prediabetes globally (the English Diabetes Prevention Programme) is effective in improving key cardiovascular risk factors, including glycated haemoglobin (HbA1c), excess body weight and serum lipid levels. We do so by using a regression discontinuity design10, which uses the eligibility threshold in HbA1c for referral to the behaviour change programme, in electronic health data from about one-fifth of all primary care practices in England. We confirm our main finding, the improvement of HbA1c, using two other quasi-experimental approaches: difference-in-differences analysis exploiting the phased roll-out of the programme and instrumental variable estimation exploiting regional variation in programme coverage. This analysis provides causal, rather than associational, evidence that lifestyle advice and counselling implemented at scale in a national health system can achieve important health improvements.]