# NEWS

*Br J Diabetes* 2020;**20**:172-178

## From the desk of the Chairman, Dipesh Patel

Well, what an extraordinary year it has been. As we enter the winds of a second pandemic wave, I reflect on my first few months in office as Chair of the ABCD. It occurs to me just how much we have had to adapt, not only as clinicians and diabetologists but also as a Society. I would firstly like to pay tribute to the fantastic efforts made by all our members and all others to keep our patients safe and well. We have all had to change the way we work immeasurably and are still coming to terms with this.

It is through the efforts of our previous Chair, Dr Dinesh Nagi, to whom I must acknowledge, that we were able to respond so quickly, as a Society, to the coronavirus pandemic. His proactive approach at ABCD, with support and guidance from our excellent executive trio, has helped us to adapt quickly and to develop and deliver tools and resources in a timely manner to support members to look after patients. We have worked closely with other societies, the Royal College and NHS England to help coordinate much of the information that we all received.

I would like to take this opportunity to thank all of our committee members, both past and present, for their time and dedication in supporting the development of new resources. Our Concise advice on Inpatient Diabetes (COVID) resources were put together by a robust expert team, led by Professor Gerry Rayman, who deserve much thanks. These have been extremely well received and our coronavirus web pages have seen traffic to our website rise substantially as the resources have become more widely disseminated and used across UK healthcare (https://abcd.care/coronavirus). The ABCD COVID-19 audit team should be recognised as having worked well to build templates and receive data in over 2,500 patients to date. I hope this will help us better determine predictors of outcomes and help our overall learning.

During the last six months we have continued to operate as a virtual organisation, with all committee and trustee meetings taking place virtually. This has assisted us to continue full operational working and we are delighted to have been able to support our members and colleagues with a series of webinars covering a range of topics from managing diabetes in care homes to language matters and also featuring two COVID specific webinars. The webinars have been very successful and are also available on demand via our website for you to watch at your leisure (https://abcd.care/abcd-webinars-series). There are plans to develop a monthly programme in 2021.

In addition to webinars, we have held an extremely successful multidisciplinary virtual Yorkshire regional meeting for over 150 delegates and will be running a second Midlands regional meeting on 26 November (https://abcd.care/events/abcd-regional-meeting-midlands). These meetings, which are free to attend, have proved to be rather effective and have been very well received by members and non-members alike. We hope we can take the learning from this new digital environment to be able to offer more virtual events in future, saving you time and money and helping towards a greener more sustainable future in the comfort of your front room or office.

We have just completed delivery of educational sessions in a dedicated ABCD virtual theatre at the Diabetes Professional Conference 2020 which appears to be an overwhelming success. Thanks to Dr Umesh Dashora and the DPC team for their efforts in achieving this.

As a result of the pandemic we were unable to host our conference in the traditional format. Whilst we will all miss the opportunity to meet up and network with our colleagues, we are delighted to be able to bring you the 2020 conference in a virtual format to be held on **16 December 2020**. Featuring many of the opportunities of a face-to-face event, this year's conference will be hosted on an interactive web platform featuring exclusive graphics to help make you feel ensconced in a conference virtual reality. Featuring a main auditorium with the latest updates by leading experts (https://abcd.care/spring-meeting-2020/programme), the conference is the go-to event for those working in diabetes and endocrinology. There will be clinical sessions, abstracts, breakout workshops for Specialist Registrars featuring leadership, service development and research.

Our secretariat has worked hard to bring us features of an exhibition area where you can visit exhibitor booths and download new and additional content to your very own 'swag bag'. There's a poster area too where you can watch video presentations by abstract authors and view posters. Most importantly, the platform allows you to network and chat with colleagues by text, audio and video – it's almost as good as being there without having to leave the comfort of your own home and at very low cost. Please try to join us for this new event. For more information visit https://abcd.care/events/abcd-conference-2020.

Our Diabetes Technology Network (DTN) continues to go from strength to strength and this year, in spite of COVID-19, the group have managed to excel themselves with the launch of The Academy (https://abcd.care/dtn/education-healthcare-professionals), a CPD accredited educational platform where you can learn about the latest in diabetes technology. The Best Practice Guides (https://abcd.care/dtn/best-practice-guides) published by DTN have been extremely well received and they have also released some Top Tips on Technology issues (https://abcd.care/dtn-uk-top-tips) which are most valuable. A CGM education programme was also launched this year and features a host of educational videos and user stories on CGM (https://abcd.care/dtn/CGM). We are developing a virtual showroom for corporate supporters to demonstrate their devices. DTN will host this virtual conference using the same platform as ABCD, which is scheduled to be held on **Tuesday 15 December**. Find out more at https://abcd.care/events/abcd-dtn-uk-meeting-2020.

This year we have also taken the opportunity to make some additional website developments, as our website is more important than ever in this digital world:

- New Homepage. With such a wide range of programmes, the previous ABCD homepage made it difficult to give each the focus they deserve. The new grid structure has been designed so the blocks can be easily moved and changed to promote active programmes. This provides our visitors instant access to key ABCD areas of work, making it quick and easy to access the information needed.

- **Event Dashboard**. We've also developed a new dashboard for website users when they log into the website. Although focused on events, ABCD members can access their member details from here. With such a wide range of digital events, a personal dashboard provides delegates with a single place to access all their upcoming events, log events they have attended and download certificates of attendance and any other relevant event information. Simply login to access your own personal dashboard.
- **Digital Memorial**. An ABCD Member Memorial was developed in 2020 to enable our members to remember and recognise the outstanding contributions of ABCD members who we have sadly lost. To add a colleague to the memorial visit https://abcd.care/digital-memorial-submission.

As Chair of the ABCD, I would like to take this opportunity to extend warm thanks to all our corporate sponsors of both ABCD and DTN, without whom none of the programmes and supporting activities would be possible:

Gold Sponsors: Abbott Diabetes Care, AstraZeneca, Lilly, Novo Nordisk Ltd, Roche Diabetes Care, Sanofi, Ypsomed Ltd

Silver Sponsors: Advanced Therapeutics (UK) Ltd, Dexcom, Medtronic

Bronze Sponsors: Insulet International Ltd, Napp Pharmaceuticals Ltd

To show your support to them, I request that you all visit their booths when you join our conference.

Finally, I wish you all a very Happy Christmas and here's hoping that Santa brings us all something nice to tide us over until the long-awaited vaccine arrives. We can then restore the services our patients need and continue positive transformation and education with the speed, innovation and enthusiasm that this pandemic has brought to us. Equally important, we will again be able to interact with each other with a warm visible smile.

Stay well and stay safe.

Dipesh Patel, ABCD Chair

## From the desk of the News Editor, Umesh Dashora

### JBDS News (Ketan Dhatariya)

- We have appointed two new DISN members: Elizabeth Camfield, Guy's and St Thomas' NHS Foundation Trust and Andrea Lake, Cambridge University Hospitals NHS Foundation Trust
- We are working towards producing a new guideline on the management of diabetes in patients with cancer
- We are in the process of refreshing some of the older guidelines, so watch this space

### Results of Rowan Hillson Inpatient Safety Award 2019 and the subject of 2021 award announced

https://abcd.care/announcement/winners-rowan-hillson-inpatient-safety-award-2019

Many thanks for submitting your entry for the Rowan Hillson Inpatient Safety Award for this year focused on the best perioperative pathway. This JBDS–IP project was led by Umesh Dashora and Erwin Castro. The submissions were judged against predetermined criteria by an independent panel constituted by Clare Crowley, Ketan Dhatariya, Lucy Fermor, Nicholas Levy and Dimitri Poumaras and chaired by Rowan Hillson.

Dr David Burkett St Laurent, Consultant Anaesthetist, Royal Gwent Hospital won the award. Dr Hillson appreciated the excellent description and careful analysis of the team's project which completely restructured existing care for people with diabetes undergoing surgery. The new care plan, from preoperative optimisation through surgery and hospital stay where required, was based on JBDS guidance. Some extracts from the entry read: "Prior to the new pathway no diabetes management plans were generated for patients; now 100% of patients have a generated plan. 1000 standardised pre-assessment plans were completed by 60 different clinicians in the year April 18– April 19." In one hospital, 91% of those with $HbA_{1c}$ >69 mmol/mol had better glycaemic control by the time of surgery. Two patients so improved their health that their surgery was no longer needed. One patient said: "I feel the best I have ever felt since my diabetes control has improved". No extra resource was required.

Close on the winners' heels were Dr Nicola Leech and the team from Newcastle Upon Tyne Hospitals Foundation Trust with 'Making Surgery Safer for people with Diabetes'. This Trust has over 76,000 surgical episodes a year among which 15% are in people with diabetes. Having found that the surgical wards were the highest risk areas for diabetes care in the Trust, "Improving perioperative diabetes care was identified as a key priority when the Trust enrolled in the national Sign-Up-to-Safety campaign". The 3-year project used national guidance to transform processes for the patient journey from referral to discharge, directing diabetes specialist care to those who needed it. Working with the IT department included the electronic sugar cube alert system. Electronic insulin alerts ensured pharmacy intervention where needed and errors and hypoglycaemia were reduced. Overnight stays reduced from 35% to 15%. The MDT leadership group continues to meet every 6 weeks.

Many thanks to all those who participated in this competition and helped run it. Hopefully, other Trusts will get inspiration and share their project in next year's competition.

These awards will be virtually presented at the national ABCD meeting on 16 December. The outcome of this initiative will be published on the ABCD, Diabetes UK and DISN UK Group websites to share excellent practice.

The award for next year is already announced on the topic of 'Best intervention during the COVID-19 pandemic that has maintained inpatient safety for people with diabetes.' https://www.diabetes.org.uk/professionals/news--updates/rowan-hillson-inpatient-safety-award-2021

## New guidelines published

### Consensus statement from ABCD and the Renal Association (Peter Winocour)

It is vital that all healthcare professionals understand why cardiac and renal risks require BOTH measurements of urine albumin creatinine ratios AS WELL as eGFR. ABCD and the Renal Association and colleagues from primary care have agreed a consensus document on screening for kidney disease that is designed for use in all healthcare settings. We encourage this to be shared with all colleagues in integrated diabetes care services, in order to help improve the frequency of full screening for both aspects of renal damage.

https://www.diabetesonthenet.com/journals/issue/620/article-details/testing-for-kidney-disease-in-type-2-diabetes-consensus-statement-and-recommendations

### More guidance for people on SGLT-2 inhibitors

ABCD has produced more guidance on the use of SGLT-2 inhibitors in people with diabetes.

https://abcd.care/resource/sglt-2-inhibitors-people-type-2-diabetes

### CaReMe group produces guidance on SGLT-2 inhibitors and patient leaflet

A newly formed group by specialists from cardiac, renal and diabetes societies is working together to improve care of people with multiple co-morbidities. It has produced excellent guidance on cardiovascular risk reduction strategies for healthcare professionals who are not diabetes specialists.

https://www.britishcardiovascularsociety.org/__data/assets/pdf_file/0021/21963/CaReMe_T2DM_CVD_2020.pdf

## From the desk of Rebecca Reeve (Sanofi)

### COVID-19 reduced research by 87%

A study led by UCL academics shows that clinical research capacity may have decreased by up to 87% in England at the peak of the coronavirus pandemic. The group estimates that, at the peak of the pandemic in April, less than 13% of full-time clinical academics in England would have been available to conduct research.

https://www.ucl.ac.uk/news/2020/aug/clinical-research-reduced-87-cent-peak-pandemic

### UK Government Obesity Strategy

The Government has announced a new package of measures to help individuals lose weight, protect themselves against COVID-19 and protect the NHS. Obesity remains one of the biggest health challenges in England, with obesity-related illnesses costing the NHS £6 billion a year. Currently, 63% of adults are overweight or living with obesity, and one in three children are overweight or obese. The need to tackle obesity has gained new importance due to the link between the disease and COVID-19. Nearly 8% of critically ill patients with COVID-19 in intensive care units have been morbidly obese compared with 2.9% of the general population.

As you will have seen, the key policies include plans for new laws to require large food and drink outlets to add calorie labelling for food and alcohol, bans for advertising of foods which are high in fat, sugar or salt before 9pm and ending 'buy one get one free deals'. From the NHS perspective, there were more key policies of interest:

- **A weight management service** – NHS services will be expanded to support people to lose more weight. This will include weight management services, self-care apps and other online tools for people with obesity-related conditions.
- **Doctors will now be offered incentives** to encourage people to lose weight and will have the power to prescribe exercise to help people keep fit.
- **The NHS will also accelerate the delivery of the NHS Diabetes Prevention Programme**.

https://www.gov.uk/government/news/new-obesity-strategy-unveiled-as-country-urged-to-lose-weight-to-beat-coronavirus-covid-19-and-protect-the-nhs

# Interesting recent research

## (Umesh Dashora)

***A rapid-fire collection (extract) of interesting recent developments in diabetes***

| Authors, Journal | Type of study | Main results |
|---|---|---|
| Chen *et al*, *Diabetologia* | Systematic review | **All-cause mortality declining in people with diabetes**<br>All-cause mortality in people with diabetes appears to have declined in most European populations since the year 2000. The extent of reduction matches or exceeds the reduction observed in people without diabetes over a similar period in nearly 60% of populations. The patterns in younger age groups and non-European populations are not clear.<br>https://link.springer.com/article/10.1007/s00125-020-05199-0 |
| Gemmink *et al*, *Diabetologia*<br>Thyfault *et al*, *Diabetologia* ,<br>Riddell *et al*, *Diabetologia* | Reviews | **The health benefits of exercise in type 1 and type 2 diabetes**<br>People with diabetes depend on fatty acids in the circulation for energy rather than intramuscular lipids in contrast to an athlete without diabetes. Exercise increases intramuscular lipids and their interaction with mitochondria. Exercise also increases liver fat and fat oxidative capacity. Endurance training remodels muscle fat and reduces liver fat in people with diabetes similar to an athlete phenotype. Best time to exercise to utilise the diurnal rhythm of insulin sensitivity is not clear.<br>https://link.springer.com/article/10.1007%2Fs00125-020-05170-z<br><br>Regular exercise improves insulin sensitivity acutely as well as through chronic adaptations and reduces the risk of type 2 diabetes non-alcoholic fatty liver disease and mortality. Many of these benefits are due to adaptations in skeletal muscles but others are through impact on liver, fatty tissue, vasculature and pancreas mediated by molecules, hormones and cytokines collectively named 'exerkines'.<br>https://link.springer.com/article/10.1007%2Fs00125-020-05177-6<br><br>Competitive athletes with type 1 diabetes can have normal muscle liver and glycogen metabolism and exercise performance can be improved by modification of the insulin dose and nutrition. Some athletes have low to moderate carbohydrate intake during training and rest days but may benefit from high carbohydrate feeding during long-distance events.<br>https://link.springer.com/article/10.1007%2Fs00125-020-05183-8 |

| Authors, Journal | Type of study | Main results |
|---|---|---|
| Cariou *et al*, *Diabetologia* | Nationwide multicentre observational study (CORONADO study) | **Phenotypic features of higher risk in people with diabetes infected with COVID -19**<br>Death or intubation within 7 days in patients with diabetes with COVID-19 was associated with higher BMI, male sex, previous treatment with RAAS blockers but not age, type of diabetes, $HbA_{1c}$, diabetes complications or glucose lowering therapies prior to admission but, on multivariate analysis, only BMI remained positively associated with the primary outcome. On admission dyspnoea, lymphocyte count, CRP and AST were independent predictors of the primary outcome. Age, treated obstructive sleep apnoea, microvascular complications and macrovascular complications were independently associated with the risk of death on day 7.<br>https://link.springer.com/article/10.1007/s00125-020-05180-x |
| Winther *et al*, *Diabetologia* | Cross-sectional study | **Gut microbiota and plasma metabolites differ in people with type 1 diabetes with or without microalbuminuria**<br>Gut microbiota differs in people with type 1 diabetes compared to controls. Research showed that 79 of 324 genera differed in relative abundance between individuals with type 1 diabetes and healthy controls and 10 genera differed significantly among people with diabetes with different levels of albuminuria. When plasma metabolites were measured, 11 of 31 metabolites differed significantly between individuals with type 1 diabetes and healthy controls. Higher plasma concentrations of indoxylsulphate and L-citrulline were found in people with macroalbuminuria compared with those with less albuminuria, and higher levels of homocitrulline and L-kynurenine were found compared with individuals with normoalbuminuria whereas plasma concentrations of tryptophan were lower in individuals with macroalbuminuria.<br>https://link.springer.com/article/10.1007/s00125-020-05260-y |
| Weng *et al*, *Diabetologia* | Retrospective observational study | **Fasting hyperglycaemia on admission without previous diagnosis of diabetes is a poor prognostic factor in patients with COVID-19**<br>Age (HR 1.02), male sex (HR 1.75), CRB-65 score 1–-2 (HR 2.68), CRB-65 score 3-4 (HR 5.25), FBG ≥7.0 mmol/L (HR 2.30) were independent predictors of 28-day mortality. The OR for 28-day in-hospital complications was also higher compared with fasting glucose <6.9 (OR 3.99) and <6.1 (OR 2.61)<br>https://link.springer.com/article/10.1007/s00125-020-05209-1 |
| Jong *et al*, *Diabetes Care* | Prospective cohort study | **Higher glycated Hb in people with diabetes is linked to higher incidence of MI but the effect is more pronounced in women than men**<br>Although women had a lower incidence of MI than men regardless of diabetes status and $HbA_{1c}$, having prediabetes, undiagnosed diabetes and diagnosed diabetes increased the risk of MI in both sexes. Previously diagnosed diabetes was more strongly linked to MI in women than men (HR 2.33 vs 1.81). Each 1% higher $HbA_{1c}$ was associated with an 18% greater risk of MI in both women and men in this study.<br>https://care.diabetesjournals.org/content/43/9/2050 |
| Yokose *et al*, *Diabetes Care* | Secondary analysis of DIRECT study | **Impact of low calorie diets on uric acid and cardiovascular risk**<br>In this analysis serum urate decreases were 48 μmol/L at 6 months and 18 μmol/L at 24 months for low fat, Mediterranean and low carbohydrate diets, with no differences between diets. Body weight, HDL cholesterol, total cholesterol to HDL ratio, triglycerides and insulin concentration improved in all three groups. The choice of diet type can be guided by patient preference and co-morbidity pattern in individuals.<br>https://care.diabetesjournals.org/content/early/2020/08/31/dc20-1002 |
| Bhavadharini *et al*, *Diabetes Care* | Epidemiological study | **White rice increases the incidence of diabetes especially in south Asia**<br>In a study over a mean follow-up period of 9.5 years, higher intake of white rice (>450 g/day vs <150g/day) was associated with increased risk of developing diabetes (HR 1.20), with the highest risk noticed in South Asia (HR 1.61) followed by other regions in the world (HR 1.41). No significant association was noted in China (HR 1.40).<br>https://care.diabetesjournals.org/content/43/3/616 |
| Succurro *et al*, *Diabetes Care* | Epidemiological study | **Replacing red meat with other sources of protein reduces the incidence of diabetes in European population**<br>Replacement of red and processed meat with cheese (HR 0.90), yogurt (0.90), nuts (0.90) or cereals (0.92) but not poultry, fish, eggs, legumes or milk reduces the risk of diabetes. Replacing red and processed meat with cheese, yoghurt or nuts could prevent 8.8%, 8.3% or 7.5%, respectively, of new cases of type 2 diabetes.<br>https://care.diabetesjournals.org/content/early/2020/08/28/dc20-1038 |
| Hásková *et al*, *Diabetes Care* | RCT | **Real time CGM is better than flash monitoring in achieving better glucose control**<br>Real time CGM group had lower percentage of participants with hypoglycaemia during exercise phase (6.8 vs 11.4%, p=0.01) and during home phase (5.3 vs 7.3% p=0.03) compared to intermittently scanned glucose monitoring, most notably at night. Real time CGM participants also spent more time in range (78.5% vs 69.7%, p=0.01) during exercise and at home (75.6% vs 67.4%, p=0.03).<br>https://care.diabetesjournals.org/content/early/2020/08/26/dc20-0112 |

| Authors, Journal | Type of study | Main results |
|---|---|---|
| Wilson *et al*, *Diabetes Care* | RCT | **Closed-loop glucagon containing dual hormone system (DH) vs only insulin system (SH) with predictive insulin suspend system (PLGS)**<br>In this RCT, the DH system reduced hypoglycaemia compared with the SH system (0.0% vs 8.3%, p=0.02). There was increased time in hyperglycaemia during and after exercise for DH vs SH (20.8% vs 6.3%, p=0.03). Over the entire study period DH resulted in 7.5% more time in target range compared with the PLGS system. DH had 28.2% time in hyperglycaemia vs 25.1% for SH (p=0.04) and 34.7% for PLGS (p=0.01).<br>https://care.diabetesjournals.org/content/early/2020/09/08/dc19-2267 |
| DiMeglio *et al*, *Diabetes Care* | Commentary | **COVID-19 and children with diabetes**<br>The data from adults may not apply to children. The number of new onset cases is 23% lower this year, but those presenting with diabetic ketoacidosis at diagnosis is higher. This may be due to reluctance in people accessing healthcare facilities or due to seasonal variation in virus traditionally associated with type 1 diabetes. Some studies have reported increase in the incidence of type 1 diabetes by 80% in children. Higher ACE receptor expression in beta cells has been theorised but the evidence is not strong. Overall there seems to be no difference in the incidence of diabetes in children due to COVID-19. Some children who are overweight in some of these studies may actually have type 2 diabetes. The COVID-19 disease is usually mild in children. More data are urgently needed.<br>https://care.diabetesjournals.org/content/early/2020/09/02/dci20-0044# |
| Fortmann *et al*, *Diabetes Care* | RCT | **Glucose is the fifth vital sign**<br>Real time continuous glucose monitoring (CGM) using Dexcom G6 showed significantly lower mean glucose levels and percentage of time in hyperglycaemia (–11.41%) and higher median time in range (+11.26%) compared with usual care with point of care testing in a non-ICU setting hospital. Percentage of time in hypoglycaemia was very low. CGM can therefore be used as a fifth vital sign.<br>https://care.diabetesjournals.org/content/early/2020/08/24/dc20-1016 |
| Ihara *et al*, *Diabetes Care* | Original research | **Profibrotic circulating proteins are associated with worsening nephropathy**<br>In a study of 681 individuals without and 500 individuals with albuminuria, 6.9% of those with normoalbuminuria and 21% of those with albuminuria suffered fast early progressive renal decline. In both groups the risk of renal deterioration increased with increasing baseline levels of WAP four-disulfide core domain protein and matrix metalloproteinase 7.<br>https://care.diabetesjournals.org/content/early/2020/09/02/dc20-0630 |
| Ranjan *et al*, *Diabetes Care* | RCT | **Increased time in range is associated with reduced albuminuria over one year in people with type 1 diabetes on sensor-augmented insulin pump treatment**<br>Mean change in percentage of time in range in the intervention group was 13.2%, $HbA_{1c}$ was –14.4 mmol/mol and urine albumin creatinine ratio (UACR) was –15% (all p<0.05). UACR decreased by 19% per 210% increase in time in range (p=0.04), 18% per 10 mmol/mol decrease in HbA1c and 31% per 10 mm Hg decrease in mean arterial pressure.<br>https://care.diabetesjournals.org/content/early/2020/09/02/dc20-0909 |
| Foussard *et al*, *Diabetes Care* | Prospective cohort study | **Diabetic retinopathy stage may be linked to the risk of lower limb amputation**<br>In this study of 1,320 participants without a history of lower extremity arterial disease (LEAD) at baseline, 94 (7.1%) developed a major LEAD during 7.1 year median follow-up (9.6 per 1,000 person-years). The LEAD incidence rate increased as retinopathy worsened from 5.5% in those without retinopathy to 14.6% in those with non-proliferative retinopathy and 20.1% in those with proliferative retinopathy. Non-proliferative retinopathy (HR 2.31, p=0.0006) and proliferative retinopathy (HR 3.14, p=0.007) remains associated with major LEAD.<br>https://care.diabetesjournals.org/content/early/2020/09/01/dc20-1085 |
| Koufakis *et al*, *Diabetic Medicine* | Narrative review | **DPP-4 inhibitors can effectively control inpatient hyperglycaemia**<br>Among the oral antidiabetes medications, only DPP4 inhibitors appear to be supported by a few well designed RCTs demonstrating a good safety and tolerability profile comparable to insulin glucose lowering efficacy and a reduction in insulin dose when co-administered with insulin to control mild to moderate hyperglycaemia.<br>https://onlinelibrary.wiley.com/doi/10.1111/dme.14329 |
| Thom *et al*, *Diabetic Medicine* | DiRECT study results | **What predicts remission of type 2 diabetes?**<br>Baseline predictors of remission at 12 months and 24 months included fewer antidiabetes medications, lower triglyceride, lower gamma GT and better quality of life with less anxiety and depression. Lower $HbA_{1c}$ was a predictor at 12 months and older age and male sex were predictors at 24 months. Non-remission was predicted by the prescribing of antidepressants. Some but not all effects were explainable by weight loss. The strongest predictor of remission at 12 and 24 months was weight loss (OR 1.24 and 1.23 per kg weight loss). Early weight loss and higher programme attendance predicted more remissions. There was no predictive value of baseline BMI, fasting insulin, fasting C-peptide and diabetes duration.<br>https://onlinelibrary.wiley.com/doi/abs/10.1111/dme.14395 |

| Authors, Journal | Type of study | Main results |
|---|---|---|
| Svart *et al*, *Diabetic Medicine* | Randomised controlled crossover study | **Oral 3-hydroxy butyrate ingestion reduces endogenous glucose production and hormone sensitive lipase phosphorylation in adipose tissue**<br>In this study oral ingestion of 3-hydroxybutyrate free fatty acids decreased by over 70% and palmitate rate of appearance was halved. Hormone sensitive lipase in adipose tissue biopsies was reduced by 70–80% in the hyperketotic condition and unchanged in the controls. Compared with control, endogenous glucose production was reduced to 20% after 3-hydroxybutyrate ingestion ($p<0.05$). These effects would be beneficial in insulin resistant state.<br>https://onlinelibrary.wiley.com/doi/abs/10.1111/dme.14385 |
| Meek *et al*, *Diabetic Medicine* | Retrospective study | **Approaches for screening for hyperglycaemia in pregnant women during and after COVID-19**<br>Gestational diabetes diagnosis was significantly associated with random plasma glucose at 12 weeks, fasting plasma glucose and $HbA_{1c}$ at 28 weeks of gestation. Each measure predicted some but not all pregnancy outcomes studied. At 12 weeks 5% of women were identified using random plasma glucose >8.5 mmol/L and at 28 weeks using $HbA_{1c}$ ≥39 mmol/mol or fasting plasma glucose ≥5.2 mmol/L. Random plasma glucose at 12 weeks and fasting plasma glucose or $HbA_{1c}$ at 12 weeks identified women with hyperglycaemia at risk of suboptimal pregnancy outcomes. These opportunistic laboratory tests perform adequately for risk stratification when OGTT is not available.<br>https://onlinelibrary.wiley.com/doi/10.1111/dme.14380 |
| Chuter *et al*, *Diabetic Medicine* | Systematic review and meta-analysis | **Accuracy of ABI in detecting peripheral arterial disease (PAD)**<br>In this meta-analysis of 33 studies, ankle–brachial index (ABI) was compared with a definitive test (angiography or colour duplex ultrasound (CDUS)). The statistical analysis comparison with angiography found a diagnostic odds ratio of 9.06 and area under the curve (AUC) of 0.76. Bivariate analyses of studies using CDUS demonstrated mean sensitivity of 0.60 and mean specificity of 0.87 with a diagnostic odds ratio of 9.76 and AUC 0.72. ABI therefore has limited effectiveness in diagnosing PAD.<br>https://onlinelibrary.wiley.com/doi/10.1111/dme.14379 |
| Salahuddin *et al*, *Diabetes Obesity and Metabolism* | Report from a programme | **Potentially unrealised mortality benefits of GLP-1 analogues and SGLT-2 inhibitors**<br>Over a median observation period of 4.3 years, of the 15,987 Veterans with type 2 diabetes and CAD, 1,009 (24.6%) people were LEADER eligible and 1,335 (25.1%) were EMPA-REG OUTCOME eligible. Under treatment with liraglutide in LEADER eligible Veterans, a 3.5% potential mortality reduction corresponding to 144 fewer deaths might have been expected. Similarly, under treatment with empagliflozin in EMPAREG OUTCOME eligible Veterans, a 7.9% potential mortality reduction corresponding to 418 fewer deaths might have been expected.<br>https://onlinelibrary.wiley.com/doi/abs/10.1111/dme.14293 |
| Lee *et al*, *Diabetes Obesity and Metabolism* | Meta-analysis | **Effect of hyperglycaemia on the mortality of patients infected with COVID-19**<br>In this meta-analysis of observational studies, 1,447 hyperglycaemic and 1,282 normoglycaemic patients with COVID-19 were analysed for the impact of hyperglycaemia on the outcome. In the hyperglycaemic group, which included people with diabetes, 17% died, 23% required some form of ventilation, 72% developed severe or critical COVID-19, 14% had acute cardiac injury, 5% had acute kidney injury and 15% developed ARDS. Compared with normoglycaemic patients, duration of hospital stay was longer but did not reach statistical significance, mortality risk was higher and the risk of admission to ICU/ventilation was also greater.<br><br>Among people with diabetes getting COVID-19 with hyperglycaemia (n=681), 16% died, 15% required ICU admission, 16% required some form of ventilation, 89% developed severe or critical COVID-19 disease, 15% had acute cardiac injury, 6% developed acute kidney injury and 15% developed ARDS. Compared to people with diabetes with good control of blood glucose, those with poor control were more significantly associated with death, the need for some form of ventilation and higher risk of acute cardiac, kidney and respiratory complications.<br><br>Of the non-diabetic patients with hyperglycaemia (n=158), 5% died, 5% required ICU admission, 38% needed some form of ventilation, 75% developed severe or critical COVID-19 disease, 20% had acute cardiac injury, 3% acute kidney injury and 2% developed ARDS. Compared to normoglycaemic COVID-19 patients, non-diabetic patients with hyperglycaemia had a higher risk of ICU admission, some form of ventilation and severe or critical COVID-19 disease.<br><br>Hyperglycaemia is thus a poor prognostic sign in people with or without diabetes in COVID-19. The mechanism may be dysregulation of the host immune response with alteration in the production of cytokines such as interleukin-6 as well as changes in the function of immune cells. Cytokine production can also induce or worsen insulin resistance or impair insulin secretion contributing to hyperglycaemic state. Hyperglycaemia promotes glycosylation of ACE-2 receptor which facilitates SARS-CoV-2 binding to the host. Hyperglycaemia may also elevate gene expression of matrix metalloproteinases which may promote inflammation. Finally, hyperglycaemia may promote thrombosis by increasing oxidative stress and decreasing heparin sulphate levels. High cortisol in non-diabetics may be responsible for hyperglycaemia. Patients with COVID-19 with uncontrolled hyperglycaemia without previous history of diabetes or with new diabetes may have a higher mortality than those with known diabetes. Insulin treatment in hyperglycaemic patients had a lower risk of severe disease compared with those not treated with insulin. Early detection and treatment of hyperglycaemia might improve the disease outcome.<br>https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14184 |

| Authors, Journal | Type of study | Main results |
|---|---|---|
| Montvida *et al*, *Diabetes Obesity and Metabolism* | Real-world study | **Cardiometabolic risk factor control with SGLT-2 inhibitors is consistent in black and white populations**<br>In this real-world study in the USA, SGLT-2 inhibitors had similar metabolic effects in white and black participants with reduction in $HbA_{1c}$ (1.1%), SBP (8–10 mm Hg), LDL cholesterol (0.26–0.34 mmol/L) and body weight (1.1–1.4 kg) after 6 months. After 18 months, however, black patients were significantly less likely to achieve sustained reduction in $HbA_{1c}$, (OR 0.67), body weight (OR 0.81), SBP (OR 0.67) and LDL cholesterol (OR 0.77). Triglyceride control was significantly better among black patients; however, their overall risk factor burden was higher irrespective of ASCVD status.<br>https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14164 |
| Huang *et al*, *Diabetes Obesity and Metabolism* | Trial level meta-analysis | **SGLT-2 inhibitors and amputations**<br>In this meta-analysis of six RCTs, of the total of 51,713 participants, 858 required operation for amputation (event rate vs control group 2.0% vs 1.3%). Random effect model revealed that SGLT-2 inhibitors were not significantly associated with an increased risk of amputation with substantial heterogeneity. This neutral effect was also consistent across different levels of subgroups including those with or without peripheral vascular disease.<br>https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14159 |
| Home *et al*, *Diabetes Obesity and Metabolism* | Meta-analysis | **Insulin glargine-lixisenatide fixed dose combination (iGlarLixi) compared with premixed insulin or meal time insulin added to basal insulin in people with type 2 diabetes**<br>In this meta-analysis of eight RCTs involving 3,538 participants with a study duration of 24–30 weeks, the estimated difference in $HbA_{1c}$ reduction with iGlarLixi compared with premix insulin, basal bolus regimen and basal plus regimen was –0.50%, –0.35% and –0.68% with a lower rate of confirmed and documented symptomatic hypoglycaemia compared with premix insulin and lower weight gain.<br>https://dom-pubs.onlinelibrary.wiley.com/doi/10.1111/dom.14148 |

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https://doi.org/10.15277/bjd.2020.274

**The ABCD News is not subject to peer review**

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UPDATE

**www.abcd.care/dtn**

It has been a busy few weeks for the DTN. We are so pleased to finally launch the ACADEMY program along with our partners Diasend/Glooko. More than 200 accounts have already signed up for ACADEMY, and your accounts will be turned live over the next few days. If you haven't already, sign up here:

https://abcd.care/dtn/education-healthcare-professionals

In the first phase we have educational videos about continuous glucose monitoring (CGM), technology in pregnancy, self-monitoring of blood glucose and virtual consultations. We believe this will be really important to see different members of the team sign up, as NHSE have asked us for the data on sign up and how many people complete the education.

We also launched a survey about how different teams are coping with the new normal of virtual consultations and what impact this has had on our ability to provide patients with the technology they want. If you haven't already done so, please fill this in

https://abcd.care/dtn/survey2020/

We hope to share the results at the DTN day on 15 December 2020. Speaking of which, sadly we will not be able to meet you and discuss things in person, but we have a fantastic virtual program set up so do sign up here:

https://abcd.care/events/abcd-dtn-uk-meeting-2020

We hope we can discuss the issues of the moment, from virtual healthcare to CGM in pregnancy and the usual workshops. We have a fantastic online platform that we hope will encourage interactivity, enabling you to discuss questions in your mind with colleagues.

Till the next report ...

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