Keeping abreast of the latest diabetes research: diabetes progression, subgroups of adult-onset diabetes and DiRECT

In this edition of Journals scan, Julie Brake, DSN in Liverpool, focuses on some of the themes and sessions that were presented at the Diabetes UK annual professional conference in March 2018.

Glycaemic deterioration in type 2 diabetes

Donnelly L et al (2018)
Diabetologia **61**: 607–15

There is considerable variation in the rate at which diabetes progresses after diagnosis. This study aimed to develop an approach for modelling progression of type 2 diabetes in order to determine variables associated with fast and slow rates of progression from diagnosis through to insulin treatment.

The study looked at real-world data to establish characteristics associated with fast or slow rates of glycaemic deterioration. The study established a "slope of deterioration", but it also established that glycaemic deterioration in people diagnosed over 70 years of age is minimal. The findings of minimal glycaemic deterioration in the older-onset group have important implications for managing this population.

Subgroups of adult-onset diabetes

Ahlqvist E (2018) *Lancet Diabetes Endocrinol* **6**: 361–9

This study looked at a cohort of 8980 newly-diagnosed Swedish people with diabetes, recording age at diabetes diagnosis, BMI, HbA_{1c}, GAD antibodies and the updated homeostasis model assessment (HOMA2) of beta-cell function and insulin resistance.

The study identified five clusters of people with diabetes that differed significantly in characteristics and risk of diabetes complications. In particular, individuals in cluster 3 (most resistant to insulin) had a significantly higher risk of diabetic kidney disease than individuals in clusters 4 and 5 (mild obesity- and age-related diabetes, respectively), yet had been prescribed similar diabetes treatment. Cluster 2 (insulin-deficient) had the highest risk of retinopathy.

This new "clustering" might eventually help to tailor and target early treatment to people who would benefit most, thereby representing a first step towards precision medicine in diabetes.

The DiRECT study: Primary care weight management in type 2 diabetes

Lean M et al (2018)
Lancet **391**: 541–51

DiRECT (Diabetes In REmission Clinical Trial) is investigating whether offering an intensive programme for weight loss and weight loss maintenance would be beneficial for people with type 2 diabetes and increase the number of people achieving diabetes remission. A total of 306 participants were recruited by 49 NHS general practices, and 149 participants each were allocated into two groups. The intervention comprised the withdrawal of antidiabetes and antihypertensive drugs, total diet replacement, stepped food reintroduction and structured support for long-term weight-loss maintenance. The control group underwent standard guideline-based care. Each treatment has already been shown to be effective, and the question being addressed by DiRECT is whether one is better than the other. Some participants also underwent tests regarding the amount of fat in their liver and pancreas.

At 12 months, diabetes remission to a non-diabetic state while off antidiabetes drugs was achieved in 46% of participants in the intervention group compared with 4% in the control group. Mean body weight fell by 10 kg in the intervention group and by 1 kg in the control group.

Metformin in type 1 diabetes

Meng H et al (2018) *Diabetes Metab Res Rev* **34**: e2983

It has long been thought that adding metformin to insulin therapies in people with type 1 diabetes could improve blood glucose levels, but this is not supported by current evidence. Additional data from large clinical trials are now available, so Meng and colleagues conducted a meta-analysis of studies assessing the efficacy and adverse effects of metformin.

The analysis concluded that, compared with placebo, metformin was not associated with improved glycaemic control, as measured with HbA_{1c}, in people with type 1 diabetes. Furthermore, although metformin did show other benefits including reductions in BMI, insulin dose requirements and lipid parameters, it was also associated with safety concerns such as severe hypoyglycaemia and gastrointestinal effects. ■

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