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Up front

Competition for publication in *Diabetologia* continues to grow, and less than 20% of papers are accepted. Of all the high-quality papers that appear in this month's issue I want to draw your attention to five articles that I think are particularly interesting. The articles are summarised here. Our publisher, Springer, has kindly made the full text of each of these papers freely available.
I hope you enjoy reading them!

Sally M. Marshall, Editor

Does diabetes prevention translate into reduced long-term vascular complications of diabetes?

David M. Nathan, Peter H. Bennett, Jill P. Crandall, Sharon L. Edelstein, Ronald B. Goldberg, Steven E. Kahn, William C. Knowler, Kieren J. Mather, Sunder Mudaliar, Trevor J. Orchard, Marinella Temprosa, Neil H. White and the DPP Research Group

Numerous trials have demonstrated the ability to prevent or delay the development of type 2 diabetes. Whether these efforts also reduce the long-term microvascular and cardiovascular complications that usually accompany diabetes is not as clear. In this issue, Nathan et al and the Diabetes Prevention Program (DPP) Research Group (which includes investigators of the long-term follow-up DPP Outcomes Study) (https://doi.org/10.1007/s00125-019-4928-8) review the major studies that have examined this question. One study with very long follow-up (20–30 years) suggests that complications can be reduced, but confirmation through further long-term follow-up of prevention studies is necessary. The authors conclude that the reduction of complications is a critical public health issue when considering the worth of diabetes prevention strategies. The figure from this review is available as a downloadable slide.

Genome editing of human pancreatic beta cell models: problems, possibilities and outlook

Diego Balboa, Rashmi B. Prasad, Leif Groop, Timo Otonkoski

Genome engineering technologies, in particular, Clustered Regularly Interspaced Short Palindromic Repeats-CRISPR-associated protein 9 (CRISPR-Cas9), have revolutionised the possibilities for genome manipulation. In this issue, Balboa et al (https://doi.org/10.1007/s00125-019-4908-z) summarise the progress and challenges in applying CRISPR-Cas9 to different human beta cell models to dissect the mechanisms behind diabetes-associated genetic variants. Genome editing can most effectively be used in induced pluripotent stem cells prior to their differentiation into beta cells. This method has the unique advantage of allowing studies in patient-derived cells. However, the functional immaturity of stem-cell derived islets is currently still a major limitation of this approach. At present, genome editing in primary human beta cells has not been possible, but new technologies may enable this in the future. Ingenious use of CRISPR-Cas9 and similar techniques will undoubtedly accelerate advances in our understanding of the interplay between type 1 diabetes and type 2 diabetes risk-associated genetic variants and their functional role in predisposing to the disease.

⬇ The figure from this review is available as a downloadable slide.

Marked improvement in HbA_{1c} following commencement of flash glucose monitoring in people with type 1 diabetes

Victoria Tyndall, Roland H. Stimson, Nicola N. Zammitt, Stuart A. Ritchie, John A. McKnight, Anna R. Dover, Fraser W. Gibb

Flash glucose monitoring is known to reduce hypoglycaemia events but little evidence supports its efficacy in reducing HbA_{1c} in type 1 diabetes. In this issue, Tyndall and Stimson et al (https://doi.org/10.1007/s00125-019-4894-1) prospectively assessed the effect of introducing flash monitoring in a diabetes centre. Compared with the total type 1 population, flash monitor users were typically younger, more affluent and had lower baseline HbA_{1c}. There was a 49% increase in the proportion achieving a target HbA_{1c} of <58 mmol/mol (<7.5%) and a >50% decrease in the proportion with an HbA_{1c} of >75 mmol/mol (>9.0%). Flash monitor use was also associated with a reduction in admissions for diabetic ketoacidosis. Self-reported hypoglycaemia increased with flash monitoring use, although this was likely to be a consequence of greater recognition of events. User satisfaction was extremely high; however, there was an increase in anxiety and depression symptoms. Taken together, the authors conclude that these findings suggest that flash monitoring is capable of reducing HbA_{1c} in a 'real-world' setting.

Moderate weight change following diabetes diagnosis and 10 year incidence of cardiovascular disease and mortality

Jean Strelitz, Amy L. Ahern, Gráinne H. Long, Matthew J. L. Hare, Greg Irving, Clare E. Boothby, Nicholas J. Wareham, Simon J. Griffin

Cardiovascular disease (CVD) is the most common complication of diabetes. Evidence of the impact of weight loss on incidence of CVD events among adults with diabetes is sparse and conflicting. In this issue, Strelitz et al (https://doi.org/10.1007/s00125-019-4886-1) report the results of a cohort analysis of 725 adults with screen-detected diabetes recruited from general practices across eastern England. They found that people with type 2 diabetes who achieved ≥5% weight loss in the year after diabetes diagnosis had a 48% lower hazard of CVD after 10 years of follow-up compared with people who maintained their weight. Associations between weight gain and CVD were less clear. Participants did not receive tailored weight loss support and most participants were overweight or obese at the time of diabetes diagnosis. According to the authors, the results suggest that moderate weight loss may lead to substantial long-term CVD reduction and may be achievable among individuals with a new diagnosis of type 2 diabetes.

Augmented insulin secretory response in early pregnancy

Camille E. Powe, Larraine P. Huston Presley, Joseph J. Locascio, Patrick M. Catalano

Augmentation of insulin secretory response in pregnancy has been attributed to a pregnancy-associated reduction in insulin sensitivity. In this issue, findings reported by Powe et al (https://doi.org/10.1007/s00125-019-4881-6) challenge this widely held theory. The authors conducted a longitudinal study of 34 pregnant women using well-validated methods for assessing insulin sensitivity (euglycaemic clamp) and insulin secretory response (IVGTT). Assessments were conducted prior to pregnancy, in early pregnancy and in late pregnancy. The authors found that the insulin secretory response increased markedly in early pregnancy, and that this occurred prior to and independent of the decrement in insulin sensitivity in late pregnancy. The authors conclude that elucidation of the mediators of the pregnancy-associated augmentation in insulin secretory response could potentially identify targets for the development of therapeutic agents for use in diabetes.

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