**Editorial**

**Diabetic Medicine and Diabetes UK**

The days are lengthening and the daffodils are blooming which means that it must be time for the annual professional conference of Diabetes UK, this year being held at ExCel in London. Following the successful inaugural Diabetic Medicine symposium on the diabetic foot at last year’s conference (1), the organising committee has kindly agreed to hold a further session this year at 1110 on Friday 16 March 2018. The topic will be diabetes and pregnancy and will include talks on the National Pregnancy in Diabetes Audit, improving pre-conception care, particularly in the aftermath of previous adverse outcomes, and optimising glycaemic control (2). As last year, the symposium is accompanied by a review article in this issue to whet your appetite. Look forward to seeing you there!

**Optimal timing of prandial insulin injections**

Managing type 1 diabetes is tough. It requires matching insulin delivery to the arrival of glucose from the gastrointestinal tract and, although an individual can choose when to eat and inject, thereafter unpredictable physiology and pharmacokinetics take over, which can lead to a mismatch of carbohydrate supply and insulin delivery.

Prandial insulin is important because it makes up approximately 50% of pancreatic insulin secretion with most secretion occurring in the first hour after eating. Owing to the formation of subcutaneous hexamers after injection, there is a lag between injection and systemic absorption. For soluble human insulin, injections should be given 20-30 minutes before eating, which is inconvenient and problematic, particularly if mealtimes cannot be accurately predicted. One of the advantages of short acting insulin analogues is a reduced time between injecting and eating. Most clinicians advise injecting 5-10 minutes before eating but many people with diabetes give their insulin at the time of eating or immediately after a meal because of concerns of hypoglycaemia. After a careful review of pharmacokinetic and pharmacodynamic studies of rapid-acting insulin analogues, Slattery et al suggest that the optimal timing for the first generation of short acting insulin analogues is in fact 15-20 minutes before a meal. Furthermore if this timing were adopted instead of injecting immediately before eating, post-meal glucose concentrations would fall by approximately 30% with a lower risk of later hypoglycaemia (3). An important clinical message! The most appropriate timing for fasting acting insulin aspart, however, needs to be determined.

The challenge in interpreting these data is the variation in physiology and pharmacokinetics between individuals. Some people, for example, those with gastroparesis, may find the slower soluble human insulin matches their requirements best while others have described demonstrable benefits from fasting acting insulin aspart. The increasing use of continuous glucose monitoring or flash glucose monitoring, however, is helping people with diabetes and their healthcare professionals understand the effects of insulin better and should allow more informed decision making about the timing of the insulin injection.

**Treating hypoglycaemia**

One area where we seem to be improving is the treatment of hypoglycaemia. Clear guidance about the amount of glucose needed to correct low glucose levels has reduced overtreatment but McTavish et al suggest we might do even better by giving an amount of glucose determined by body weight (4). In a small study of people using insulin pumps, they showed that correcting hypoglycaemia with 0.3 g/Kg body weight of glucose or twice the dose if the capillary glucose levels were less than 3 mmol/L was 2-3 times more effective than the standard doses of 15 g for adults or 10 g for children. Whether this improvement would be seen in people using multiple daily injections or whether this approach can be easily incorporated into clinical practice remains to be seen.

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References

1. Clokie M, Greenway AL, Harding K, Jones NJ, Vedhara K, Game F, Dhatariya KK. [New horizons in the understanding of the causes and management of diabetic foot disease: report from the 2017 Diabetes UK Annual Professional Conference Symposium.](https://www.ncbi.nlm.nih.gov/pubmed/28029181) Diabet Med. 2017 Mar;34(3):305-315. doi: 10.1111/dme.13313.
2. Murphy, HR et al. The National Pregnancy in Diabetes (NPID) audit: challenges and opportunities for improving pregnancy outcomes. DME-2017-00788
3. Slattery et al. Optimal prandial timing of bolus insulin in diabetes management: a review. DME13525
4. McTavish et al. Weight-based carbohydrate treatment of hypoglycaemia in people with Type 1 diabetes using insulin pump therapy: a randomized crossover clinical trial. DME13576