**Diabetic Medicine July 2020 Editorial**

**Reducing in-patient hypoglycaemia**

When preparing my monthly editorial, I usually begin by looking through the table of contents to seek a theme of the month and try to tie this with current affairs. Over the last two months, the editorials have understandably focussed on covid-19 [1, 2]; last month, I described the various efforts to produce relevant and up-to-date UK guidelines to support the management of people with diabetes and covid-19 infection. At the time, these articles were only available as accepted articles [3-5]. Wiley, Diabetic Medicine’s publishers, have been true to their word and have fast-tracked the papers to print publication and these now appear in this month’s issue. They are supplemented by additional guidance from the UK National Diabetes Inpatient Covid Response Group on the management of in-patient hyperglycaemia [6] and diabetic ketoacidosis [7] and the first paper on the psychological sequelae of covid-19 [8] accompanied by a thoughtful commentary on how to best support people with diabetes during the pandemic [9].

Having devoted last month’s editorial to covid-19, initially I feared that I had hoisted myself by my own petard by describing last month much of what now appears in this issue. However, I was wrong because there is much stimulating material to read beyond the covid-19 articles.

The annual UK National Diabetes Inpatient Audit continues to show a high incidence of hypoglycaemia in people with diabetes admitted to hospital, with around 1 in 5 people experiencing a low glucose on any one day and approximately 10% developing severe hypoglycaemia, defined as a glucose of less than 3 mmol/L. This incidence is probably around double the rate in people with diabetes living in the community. In-patient hypoglycaemia is associated with substantial mortality and morbidity, longer length of stay and increased costs and so understandably, strenuous efforts have been made to reduce the frequency of hypoglycaemic episodes in hospital. The study by Avanzini et al aimed to reduce in-patient hypoglycaemia by introducing the concept of the “brick diet” [10]. One of the challenges in hospital is that appetite changes and it is not always easy to predict how much carbohydrate will be eaten during a meal. In order to help match insulin doses to carbohydrate intake, foods were introduced that contained fixed amounts of carbohydrate in multiples of 10g, one “brick”. The bricks could then be counted easily by the nursing staff and insulin doses calculated and administered immediately after the meal. As a result, in-patient hypoglycaemia rates fell by 30%.

Another cause of hypoglycaemia is insulin prescription errors. Insulin has a narrow therapeutic index and is a “high-risk” medicine because of its potential for harm if prescribed or administered incorrectly. Sadly, insulin errors are all too common with the National Diabetes Inpatient Audit reporting errors for ~40% of in-patients with diabetes. Insulin prescribing is complex because of the many similarly-named products with different types and concentrations of insulin coupled with the marked differences in dose and regimen between individuals. Many reasons underlie the prescribing errors ranging from lack of knowledge and skill of the prescribers to service processes. Bain et al surveyed chief pharmacists working in hospital trusts across the UK to discover how insulin is prescribed and the steps taken to reduce prescribing errors [11]. 40% of hospitals, mostly teaching hospitals, utilise electronic prescribing but there was a variety in functionality of these systems. 29% of hospitals have a specialist diabetes pharmacist and these trusts were more likely to have implemented insulin prescribing error reduction strategies. This paper suggests that sharing best practice has the potential to reduce this important cause of in-patient hypoglycaemia.

Lastly, I was fascinated by the commentary from Russell-Jones et al who describe the latest regulations regarding commercial airline pilots with diabetes [12]. Historically, individuals with insulin-treated diabetes have been barred from piloting aircraft because of the potentially disastrous consequences of developing hypoglycaemia while flying. In 2002, Canada was the first country to allow pilots with insulin‐treated diabetes to fly commercial aircraft, followed 10 years later by the UK. A strict protocol is in place that requires a regular, thorough individual medical assessment and review of glucose monitoring data, including in‐flight log records demonstrating that the pilots have followed the protocol. Ireland adopted the protocol in 2015, with Austria doing so the following year. The procedures have worked effectively and have also been approved by the European Aviation Safety Agency. USA is the latest country to certify pilots for commercial flying. These decisions have had to balance public safety against the desire of people with diabetes to work in this capacity. For aspiring pilots with insulin-treated diabetes, it must be reassuring to learn that diabetes should no longer be seen as an automatic barrier to flying.

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References

1. Ma RCW, Holt RIG. COVID-19 and diabetes. Diabet Med. 2020;37(5):723-5.

2. Holt RIG. Diabetic Medicine in lock-down. Diabet Med. 2020;37(6):907-8.

3. Hanif S, Ali SN, Hassanein M, Khunti K, Hanif W. Managing People with Diabetes Fasting for Ramadan During the COVID-19 Pandemic: A South Asian Health Foundation Update. Diabet Med. 2020. DME14312

4. Rayman G, Lumb A, Kennon B, Cottrell C, Nagi D, Page E, et al. Guidelines for the management of diabetes services and patients during the COVID-19 pandemic. Diabet Med. 2020. DME14316

5. Sinclair A, Dhatariya K, Burr O, Nagi D, Higgins K, Hopkins D, et al. Guidelines for the management of diabetes in care homes during the Covid-19 pandemic. Diabet Med. 2020. DME14317

6. Rayman G, Lumb A, Kennon B, Cottrell C, Nagi D, Page E, et al. New Guidance on Managing Inpatient Hyperglycaemia during the COVID-19 Pandemic. Diabet Med. 2020. DME14327

7. Rayman G, Lumb A, Kennon B, Cottrell C, Nagi D, Page E, et al. Guidance on the management of Diabetic Ketoacidosis in the exceptional circumstances of the COVID-19 pandemic. Diabet Med. 2020. DME14328

8. Joensen LE, Madsen KP, Holm L, Nielsen KA, Rod MH, Petersen AA, et al. Diabetes and COVID-19: psychosocial consequences of the COVID-19 pandemic in people with diabetes in Denmark-what characterizes people with high levels of COVID-19-related worries? Diabet Med. 2020. DME14319

9. Skinner T, Speight J. Supporting people with diabetes during a pandemic. Diabet Med. 2020. DME14320

10. Avanzini F, Marelli G, Amodeo R, Chiappa L, Colombo EL, Di Rocco E, et al. The 'brick diet' and postprandial insulin: a practical method to balance carbohydrates ingested and prandial insulin to prevent hypoglycaemia in hospitalized persons with diabetes. Diabet Med. 2020. DME14293

11. Bain A, Hasan SS, Kavanagh S, Babar ZU. Strategies to reduce insulin prescribing errors in UK hospitals: results from a national survey. Diabet Med. 2020. DME14209

12. Russell-Jones DL, Frier BM, Shaw KM. USA joins Canada, UK, Ireland and Austria in allowing people with insulin-treated diabetes to fly commercial aircraft. Diabet Med. 2020. DME14273