The new NHS Diabetes guidelines on the perioperative management of people with diabetes

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Given the nature of diabetes as a long-term condition, much of what we do in our profession has been determined by evidence from large, long-term intervention trials. These provide a strong evidence base for recommending person specific targets for HbA1c, blood pressure and lipids. However, as diabetes specialists we also have an important role in ensuring that the condition is well managed during hospital admission and in this area there is very limited evidence on which to base recommendations.

The incidence of diabetes is rising exponentially and as a consequence the number of inpatients with diabetes is also rising. Attention is therefore focusing on inpatient care, with recognition that this is frequently suboptimal. The 2010 National Inpatient Audit reports a mean diabetes prevalence of 15% (range 6.6–24.3%) among inpatients in acute hospitals.[1] The audit shows that patients with diabetes experience high levels of medication and management errors and increased length of stay.[1,2] Guidelines for the management of inpatients with diabetes are needed to standardise and improve care across the UK.

Surgery in people with diabetes is a neglected area, with surgeons and anaesthetists often happy with the idea of 'permissive hyperglycaemia', assuming that short (or even long) term hyperglycaemia is less likely to do the patient harm than a hypoglycaemic episode while under anaesthetic. However, recent data from the US have demonstrated that people with diabetes undergoing surgery have an almost 50% greater chance of postoperative mortality than those with normal glucose tolerance and have adverse consequences in all measures of postoperative morbidity.[3] Furthermore, people with preoperative hyperglycaemia, who were not previously known to have diabetes, had a risk of perioperative death up to 12 times that of people without diabetes, rising to 40 times if the hyperglycaemia persisted postoperatively.[3] These are powerful data and if you could tell your surgical colleagues that you could reduce their perioperative mortality by 12-fold without them even putting knife to skin, you would probably get their attention fairly swiftly.

Addressing patients' concerns

People with diabetes have voiced their concerns about the management of their diabetes while in hospital,[4] and these are now being addressed. NHS Diabetes together with the Joint British Diabetes Societies (JBDS) produced excellent guidelines for the management of diabetic ketoacidosis and hypoglycaemia, and have commissioned guidelines for the perioperative management of diabetes.[5] Over the last two years, a group comprising diabetes consultants, diabetes specialist nurses, anaesthetists and surgeons has been working on these guidelines to improve the standards of care for people with diabetes undergoing elective surgery or procedures requiring a period of starvation. This is a complex area, with sometimes conflicting views about the optimum management, depending on whether the focus is on the surgical procedure, anaesthesia or diabetes. Patient views have been taken into account and National Patient Safety Agency alerts about safe use of insulin have been incorporated. These guidelines were formally launched at Diabetes UK in March 2011.

Meeting the challenge

The challenge for the writing group was that any guideline needs to be concise and easily accessed so that the role of the health care professional and the action to be taken are clear. However, guidelines also need to be evidence based wherever possible (accepting that there may be a dearth of good quality evidence). The evidence needs to be discussed and referenced and in a complex area such as perioperative care this inevitably leads to a long document. To meet the dual criteria of brevity and detail, the guidelines have been produced as two documents.

- A summary: this details the seven stage patient journey with aims and an action plan for each stage.[5] Appendices provide examples of recommendations for diabetes management at each stage. This document has been sent to all chief executives, medical directors, diabetes departments, and surgical and anaesthetic clinical governance leads to ensure widespread publicity.
- The main document: this is expanded to discuss the evidence for the recommendations and includes a section on controversial areas, where the evidence is either conflicting or lacking. The main document is not intended to be read from cover to cover, but is a resource for those writing local guidelines. This document is only available online at www.diabetes.nhs.uk/our_work_areas/inpatient_care/perioperative_management/. It is aimed at managers and local guideline writers to allow them to create a seamless pathway between primary and secondary care. There is sufficient flexibility within the guidelines to accommodate local variation but the overriding focus remains the care of the person with diabetes.

Emphasis on communication

At each stage of the patient pathway the responsibilities of the health care professionals are spelled out with the emphasis on communication. For example, at the primary care stage a minimum data set indicates the information that general practitioners should provide to the surgeons in the referral letter. The surgeon has responsibilities to ensure that the preoperative assessment clinic is aware that the patient has diabetes and to ensure that the patient is placed early on the list. The preoperative assessment clinic staff should ensure that a management plan is in place so that, when the person arrives for day-of-procedure admission, there are no surprises for patient or staff.

Specific aims

One of the aims of the document is to prevent the almost wholly unnecessary practice of overnight pre-admission for 'glycaemic optimisation'. As the Diabetes UK focus group observes, this often means taking the patient's insulin away from them, putting them on a variable rate intravenous insulin infusion (VRIII) and leaving them to be managed by junior surgical nursing staff on nights who are responsible for dozens of patients but have little or no knowledge of how to manage diabetes.

The writing group acknowledges that substantial parts of the guidelines are not 'evidence based', because evidence is not available but, where there is evidence, this has been quoted. High blood glucose levels pre- and post-operatively have been shown to be associated with poor outcomes, but there is little evidence to show that strict perioperative glycaemic control is associated with good outcomes or to indicate what the glycaemic targets should be. Hence, the glycaemic targets are modest: an HbA_{1c} of <69mmol/mol (8.5%) prior to referral, or a blood glucose of between 6 and 10mmol/L (4–12 is acceptable) during the inpatient stay.

Controversial areas discussed in the main document include glycaemic targets and choice of intravenous fluids for use with a VRIII. Traditionally, 5% glucose has been the fluid of choice but there is evidence that this is associated with hyponatraemia.[6–8] The fluid options are discussed in an appendix, but the recommended fluid is 0.45% sodium chloride with 5% glucose. Although this fluid is more costly than 5% glucose and less widely available, negotiations are ongoing to make it both cheaper and more accessible.

Adding to the evidence base

The document is a dynamic one. There is no 'one size fits all' for all surgical units across the UK and the writing group strongly urges local providers to adapt the guidelines for their own use. Where there are differences in practice, units are encouraged to report their experience to the writing group. If units have evidence to show that their strategy for management of people with diabetes is safe, we encourage them to publish in order to expand the evidence base for the recommendations.

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Declaration of interests

There are no conflicts of interest declared.

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