

Perioperative management of adults with diabetes: why do we need guidance?

In 2010 the National Inpatient Audit reported a mean diabetes prevalence of 15% (range 6.6–24.3%) among inpatients in acute hospitals (NHS Diabetes, 2011). The audit showed that patients with diabetes experience high levels of medication and management errors and increased length of stay. This was in line with previous data from Sampson et al (2007).

Guidelines

Before the publication of the National Inpatient Audit data, the Joint British Diabetes Societies inpatient care group, together with NHS Diabetes, had commissioned a series of guidelines to improve and standardize the management of inpatients with diabetes across the UK. The Joint British Diabetes Societies consists of representatives from Diabetes UK and the Association of British Clinical Diabetologists – thus expert groups representing the patients and the professions.

Together, the group has published several excellent guidelines that are freely available on the websites of Diabetes UK (www.diabetes.org.uk) or NHS Diabetes (www.diabetes.nhs.uk). They cover the management of diabetic ketoacidosis (Savage et al, 2011) and hypoglycaemia (Stanisstreet et al, 2010). The publication of guidelines on the management of hyperosmolar hyperglycaemic state, and glycaemic management during the inpatient enteral feeding of stroke patients with diabetes are imminent.

In 2011 the Joint British Diabetes Societies published guidelines on the perioperative management of adult patients with diabetes undergoing surgery or procedures (Dhatariya et al, 2011). The writing group was made up of diabetologists, diabetes specialist nurses, anaesthetists and surgeons. The group acknowledged that many of the recommendations come from low grade evidence. There are few data available on this increasingly important aspect of diabetes care, but where there were data, they were referred to.

Importance of glucose control

There had been increasing awareness of the risks associated with perioperative glucose control, with high glucose or glycated haemoglobin (HbA_{1c}) levels being associated with poor outcomes in a variety of surgical specialities (Halkos et al, 2008; Gustafsson et al, 2009; Kreutziger et al, 2010). Data from intensive care units and cardiac surgery suggesting that tight glucose control was beneficial were conflicting and do not apply to the vast majority of patients undergoing surgery (De La Rosa et al, 2008; The NICE-SUGAR Study Investigators, 2009; Van den Berghe et al, 2001).

Surgery in people with diabetes has been a relatively neglected area, with surgeons and anaesthetists often happy with the idea of 'permissive hyperglycaemia'. This assumed that short (or even long) term hyperglycaemia was less likely to do the patient harm than a hypoglycaemic episode while under anaesthetic.

However, data from the USA 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 (Frisch et al, 2010). The study was only observational, and not powered to show statistical significance, indeed at the very highest levels of blood glucose levels – in those previously undiagnosed with diabetes – the numbers of people undergoing surgery were too small to show significance. However, the data did strongly suggest that preoperative hyperglycaemia in patients 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 (Frisch et al, 2010). Surgical colleagues should note these data – that they could potentially reduce their perioperative mortality 12-fold without even putting knife to skin.

What are lacking, of course, are data from intervention trials to confirm this. It is for this reason that one of the key recommendations is that people due to undergo surgery should have an HbA_{1c} of ≤ 69 mmol/mol (8.5%). This figure was a pragmatic one, reached through discussions about what is achievable and what is realistic without unduly delaying an elective procedure.

The guidelines cover all elements of the patient's journey – referral from primary care, the surgical outpatients, preoperative assessment clinic, hospital admission, theatres and recovery, postoperative care and discharge. At each stage of this pathway the responsibilities of 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 GPs 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.

One aim of the document is to prevent the almost wholly unnecessary practice of overnight pre-admission for 'glycaemic optimization' – people with diabetes being admitted one evening to be looked after by junior medical and nursing staff who have little knowledge or understanding of diabetes (George et al, 2011).

The manipulation of oral and injectable glucose lowering agents is key to the successful use of the guideline, with tables clearly setting out what should be done to the classes of agent depending on when the operation is. The guideline is mainly for use for those patients who are due to undergo elective surgery, where they are expected to miss no more than one meal.

For those who require emergency surgery, or for those requiring a period of prolonged starvation, the use of a variable rate intravenous insulin infusion (the term 'sliding scale' should be consigned to history) is still recommended.

The guideline was sent to every chief executive, medical director and clinical governance leads for surgery, anaesthetics and diabetes of every trust in England. It was also sent to clinical governance leads of primary care trusts.

It is important for each unit to get an idea of what their own practice is, starting from ensuring that GPs include all the basic information in their referral letters, persuading preoperative assessment teams to do a simple finger prick, bedside blood glucose reading and avoiding overnight pre-admission to making sure the patient is first on the list. Once individual units have reviewed their own practice, they can then see what elements may have room for improvement.

Conclusions

The implementation of these guidelines will not be easy. However, by using simple changes in process, the authors of the guidelines hope that the overall care of the person with diabetes undergoing surgery will improve, and that outcomes will approach those seen in people without the condition. **BJHM**

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KEY POINTS

- People with diabetes are admitted to hospital more frequently for surgery than those without the condition.
- People with diabetes have longer lengths of stay in hospital than those without diabetes.
- Hyperglycaemia, preoperative and more particularly postoperatively, significantly increases the risk of 30-day morbidity and mortality.
- Units should benchmark their own services and use the national guideline on the perioperative management of patients with diabetes undergoing surgery to see where their practice could be improved.