Diabetes in the day care setting

Julie May

In the current political climate of efficiency and cost-cutting drives, people with diabetes in the author's locality continue to have their elective surgery in the local district general hospital as inpatients, as opposed to in the day surgery unit as day cases. In 2001, there were 1.3 million people with diagnosed diabetes, and it is estimated that this will rise to 3 million people by the year 2010 (Department of Health, 2001). The economic impact of this anticipated increase in the prevalence of diabetes will require ever more effective and efficient use of already over-stretched resources. Acknowledging these factors, this article discusses a project to pilot new guidelines that will enable day case diabetes management in a short stay surgical setting.

Article points

1. Effective and efficient use of resources are essential to cope with the increasing prevalence of diabetes.
2. Advances in medical practice and technological advances enable changes in practice that incorporate both clinical effectiveness and efficiency.
3. The day surgery philosophy and practice of empowering people with diabetes towards self-care is congruent with them managing and feeling in control of their diabetes management.
4. The development of guidelines for pre, peri and post-operative diabetes management, and providing a consistent plan of care with the patient may reduce length of hospital stay and enable the patient to return to normal earlier.

Key words

- Day surgery
- Surgical guidelines
- Cost effectiveness and efficiency

The use of day surgery continues to grow and accounts for 60% of all elective surgery in this country (De Lathouwer and Poullier, 1998). The government target is for 75% of patients having their elective surgery within day-surgery facilities (Department of Health [DoH], 2000). This increase is due to changes in medical practice (such as early ambulation post-surgery, and technological advances in surgical and anaesthetic techniques and drugs) and the focus on providing quality services at a reduced cost (Millar et al, 1997).

The day surgery unit at the author's place of work promotes Orem's model of self-care by encouraging the individual to take an active role in their care (Orem, 1995). The nurses provide relevant information and health education and promotion to people according to their individual ability at pre-assessment; this, therefore, allows the empowerment of the individual through collaboration and involvement (Cahill and Jackson, 1997). Therefore, the day surgery philosophy is considered congruent with the aims of the *NHS Plan: A Plan for Investment, A Plan for Reform* (DoH, 2000) and the *National Service Framework for Diabetes: Standards* (DoH 2001), in that it places patients firmly at the centre of modernising services.

Studies have shown that the average day surgery's unit-cost savings were between 19% and 68% when compared with inpatient surgery for similar procedures (Jarrett, 1995).

Day surgery selection criteria

Historically, inpatient referral was in accordance with the strict selection criteria of day case patients as suggested by the American Society of Anesthesiologists' (ASA) physical status classification (*Table 1*; ASA, 2006). Those classified as ASA-1 or ASA-2 are suitable for day surgery. People with type 2 diabetes are classed as ASA-2. The UK Prospective Diabetes Study (UKPDS) Group (1998) found that type 2 diabetes is progressive and relentless in nature, with 50% of people newly diagnosed with type 2 diabetes already showing evidence of related complications such as cardiovascular disease, nephropathy and retinopathy.

People with type 1 diabetes were classified, by the ASA physical status classification, as 'unsuitable' for day surgery. However, a study looking at pre-existing medical conditions as predictors of adverse events in day surgery cases did not find type 1 diabetes to be a significant predictor of peri- or postoperative events in day surgery (Chung et al, 1999). The process of the care and the experiences of people with diabetes undergoing surgery were not addressed in this study but are, in the author's opinion, as important to consider. This study also did not identify that there is an increased risk of

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Table 1. The American Society of Anesthesiologist's (ASA) physical status classification (ASA, 2006).

ASA-1	A healthy patient.
ASA-2	Mild systemic disease, no functional limitation.
ASA-3	Severe systemic disease, some functional limitation.
ASA-4	Severe systemic disease, incapacitating and a constant threat to life.
ASA-5	Moribund patient not expected to survive for more than 24 hours with or without operation

'The general statement that strict selection criteria are needed, and that only ASA-1 or ASA-2 patients are suitable for day surgery, is unhelpful. Even ASA-1 or ASA-2 patients may need assessment and investigation. Stable ASA-3 and even selected ASA-4 patients are increasingly being treated as day cases, but these patients need more careful assessment and must be anaesthetised and operated on by senior and experienced medical staff.'
(Millar et al, 1997)

Page points

1. Following the success of the implementation of endoscopy and colonoscopy guidelines, the author and her colleagues are developing guidelines for day surgery patients undergoing general anaesthesia.
2. Audits have shown that when such guidelines are implemented a significant number of people with diabetes receive not only advice relating to their impending procedure, but also review and education relating to their diabetes management.

unplanned admissions due to type 1 diabetes as Bryson and colleagues' did (2004). An analysis of the causes of unanticipated admissions could illuminate preventative measures that could be taken to minimise such unplanned admissions.

A survey of Canadian anaesthetists' selection criteria for people with type 1 diabetes found that the vast majority agreed they would proceed with surgery as a day case (Friedman et al, 2004). Contraindications for people with diabetes for day surgery included comorbidities such as myocardial infarction in the previous 6 months, morbid obesity (body mass index >35 kg/m^2) with cardiovascular or respiratory complications, sleep apnoea and having anaesthetic with narcotics post-operatively. There have been suggestions that consultant physicians should assume patients would be day cases unless pre-operative assessment indicates otherwise (Kenny, 2005).

Current care management

Historically, clinicians have referred people with diabetes for inpatient care regardless of the operative procedure (The Association of Anaesthetists of Great Britain and Ireland, 2005; this publication places the emphasis on pre-operative assessment and the management of chronic conditions in day surgery; however, in practice, this is yet to happen). Local data suggest that most people with diabetes continue to have their surgery as inpatients (unpublished). This often involves a two-night stay and the use of sliding scale insulin. Recently, some people have been having their elective surgery in the day surgery unit, but have been admitted to a nearby inpatient ward the night before surgery and one night postoperatively, with the use of sliding scale insulin.

In the author's experience patients become anxious and fearful about their diabetes management pre-, peri- and postoperatively when the healthcare professional lacks diabetes knowledge. This is because it may increase their length of stay, increase their recovery time, increase the number of interventions, and hypoglycaemia and hyperglycaemia may be mismanaged. Such stress is known to increase blood glucose levels, which could cause ketosis (Jerreat, 2003).

Development of diabetes day case pre-, peri- and postoperative guidelines

Following the success of the implementation of the endoscopy and colonoscopy guidelines (Wamae and McHoy, 2006), the author and her colleagues are developing guidelines for day surgery patients undergoing general anaesthesia (see *Apendix 1* for the proposed guideline for those undergoing a morning procedure and who are on twice-daily mixed insulin). These guidelines have been based on the length of time the patient is nil-by-mouth and is maintaining blood glucose levels between 4 and 11 mmol/l. The guidelines, once approved and implemented, will provide advice on how to adjust medication pre-operatively, monitor and manage the patient peri-operatively and during recovery, and finally the transition back to his or her normal treatment regimen.

Audits have shown that when such guidelines are implemented a significant number of patients receive not only advice relating to their impending procedure, but also review and education relating to the management of their diabetes (Hilton and Digner, 2006; Wamae and McHoy, 2006). This is concordant with standard 3 of the National Service Framework (NSF) for diabetes, which encourages staff to engage patients in decision-making (DoH, 2001).

One significant difference between the endoscopy and colonoscopy process and this proposed one is that the diabetes specialist nurse (DSN) will not be able to provide this plan of care to patients while assessing and optimising their pre-procedure glycaemic control, due to the

volume of patients and limited DSN resources. However, a major strength is that the DSNs involved in the development of the endoscopy and colonoscopy guidelines have provided support to the development of the current guidelines, and the same consultant diabetologist and consultant anaesthetist are involved. There is also strong support from the clinical manager for surgery and the nurse consultant in diabetes.

Following an audit of current surgical diabetes care for patients the author and her colleagues plan to pilot the guidelines. An audit conducted at a different hospital provided valuable insight into surgery and diabetes management and the need for communication and education of all healthcare professionals involved in these patients' care (Hilton and Digner, 2006).

Context of pilot

The pilot will take place within a short-stay surgery ward within Worthing Hospital. This ward was approached as the staff recognised the need for greater quality of care for patients with diabetes and had the potential to reduce the length of stay from two nights to a day. The potential savings would be approximately £400 per patient in reduced bed occupancy, as well as the savings in reduced interventions; overnight facilities are still available if required.

The nurses on the ward have some experience of diabetes but acknowledge the need to upskill and will attend formal education modules on the subject at level 2 or 3, which are held at the author's diabetes centre. The ward sisters have been instrumental in refining the guidelines so that they are easy to understand. This involvement has increased their knowledge and confidence in using the guidelines. Concurrently the pre-assessment sister for surgery was also involved which meant that all relevant healthcare professionals are interpreting the guidelines in the same way.

The next stages

At the time of writing (August 2006), the guidelines were due to be presented to the local anaesthetists at their monthly meeting in September 2006. All those involved to date, plus the theatre manager and the ward sister will be invited so that everyone's views can be aired, questions answered and subsequent problems discussed. In the author's opinion collaboration between individual healthcare professionals, departments and with primary care will increase the success of the proposed guidelines. Without such collaboration there exists the risk of ineffective and inefficient services and poor standards of care for patients (Da Costa, 2004).

The patient information sheets of the expected plan of care and diabetes management will be provided to the individual at pre-assessment and will include the need to bring in dextrose tablets (this is of particular importance locally because dextrose tablets did not used to be stocked by the pharmacy at Worthing Hospital, however, they are now).

Referral criteria are to be established in order that the pre-assessment nurses understand when a patient's diabetes treatment and management needs review. Within our diabetes service, there are three DSNs, funded by the local primary care trust, who run joint clinics with the practice nurses in primary care; part of their role is to optimise diabetes control pre-operatively to prevent postponement or cancellation of the procedure and ensure the best outcomes for the patient. This kind of 'joined-up service' means that advice, information and management will be consistent for individuals in both primary and secondary care, which will engender their trust and confidence for the impending surgery and ongoing care. Consistent care enables implementation of standard 8 of the NSF guidelines which states that patients 'will receive effective care of their diabetes' when admitted to hospital (DoH, 2001).

At the time of writing, the aim was to implement the new guidelines by the end of September 2006. Informal education is ongoing and due to a greater awareness of potential problems the DSNs have been involved in pre-admission care planning. Formal education is also provided (the aforementioned diabetes modules) in which there is a 'surgery and diabetes' session.

Once the effectiveness of the guidelines has been assessed by an audit, if deemed successful, they will be implemented into the day surgery unit. Since the day surgery team have had limited experience of the management of people with diabetes, packages of education will be provided.

Page points

1. Following an audit of current surgical diabetes care for patients the author and her colleagues plan to pilot the guidelines.
2. The pilot will take place within a short-stay ward within this hospital. This ward was approached as the staff recognised the need for greater quality of care for these patients and had the potential to reduce the length of stay from two nights to a day.
3. At the time of writing, the guidelines were due to be presented to the local anaesthetists at their meeting in September 2006. All those involved to date, the theatre manager and the ward sister will be invited so that everyones views can be aired, questions answered and subsequent problems discussed.
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Page points

1. Progress in admitting patients with diabetes for day surgery has been slow in this country, but since there has been scarce research into management and outcomes for this group of individuals, caution must be exercised to reduce clinical risk.
2. Cost saving is a driving force in the current economic climate.

Further consideration

Changes in anaesthetic approaches may improve glycaemic control. One study found that using local anaesthesia peri-operatively in people with diabetes did not increase blood glucose levels as in the case of general anaesthesia (Barker et al, 1995). This could be as a result of less stress peri-operatively as a result of which the patient may feel more in control of their diabetes management. More research on anaesthesia and its effects on glycaemic control of people with types 1 and 2 diabetes is needed.

A major concern is also that an estimated one third of the UK population with type 2 diabetes remain undiagnosed (Diabetes UK, 2005). It is this population who are more likely to be at risk of adverse effects due to anaesthesia because of existing microvascular problems. Pre-assessment is potentially an opportunity to implement Standard 2 of the NSF, which involves the identification of people as yet undiagnosed with type 2 diabetes (DoH, 2001). Pre-operative assessment requires nurses to identify any condition that may require intervention prior to surgery, and to refer individuals for health optimisation to primary care specialists prior to surgery (DoH, 2003). It is important for pre-assessment nurses to understand diabetes risk factors, care management and current practice in order to pre-assess people about to undergo day surgery.

Conclusion

Progress in admitting people with diabetes for day surgery has been slow in this country, but since there has been scarce research into management and outcomes for this group of individuals, caution must be exercised to reduce clinical risk. Cost saving is a driving force in the current economic climate. However, it is irresponsible to reverse current practice ahead of education, training and guidelines for day surgery unit staff. Piloting the new guidelines in an inpatient setting, and auditing it, will provide the author and her colleagues with information on its posititive and negative points. Planned change will reduce staff resistance to the implementation of new guidelines and maximise patient safety.

The author believes that it is also important to continually update any local and national guidelines in line with up-to-date evidence. The guidelines to be piloted are designed in such a manner that this will be possible without the need for extensive redesign. ■

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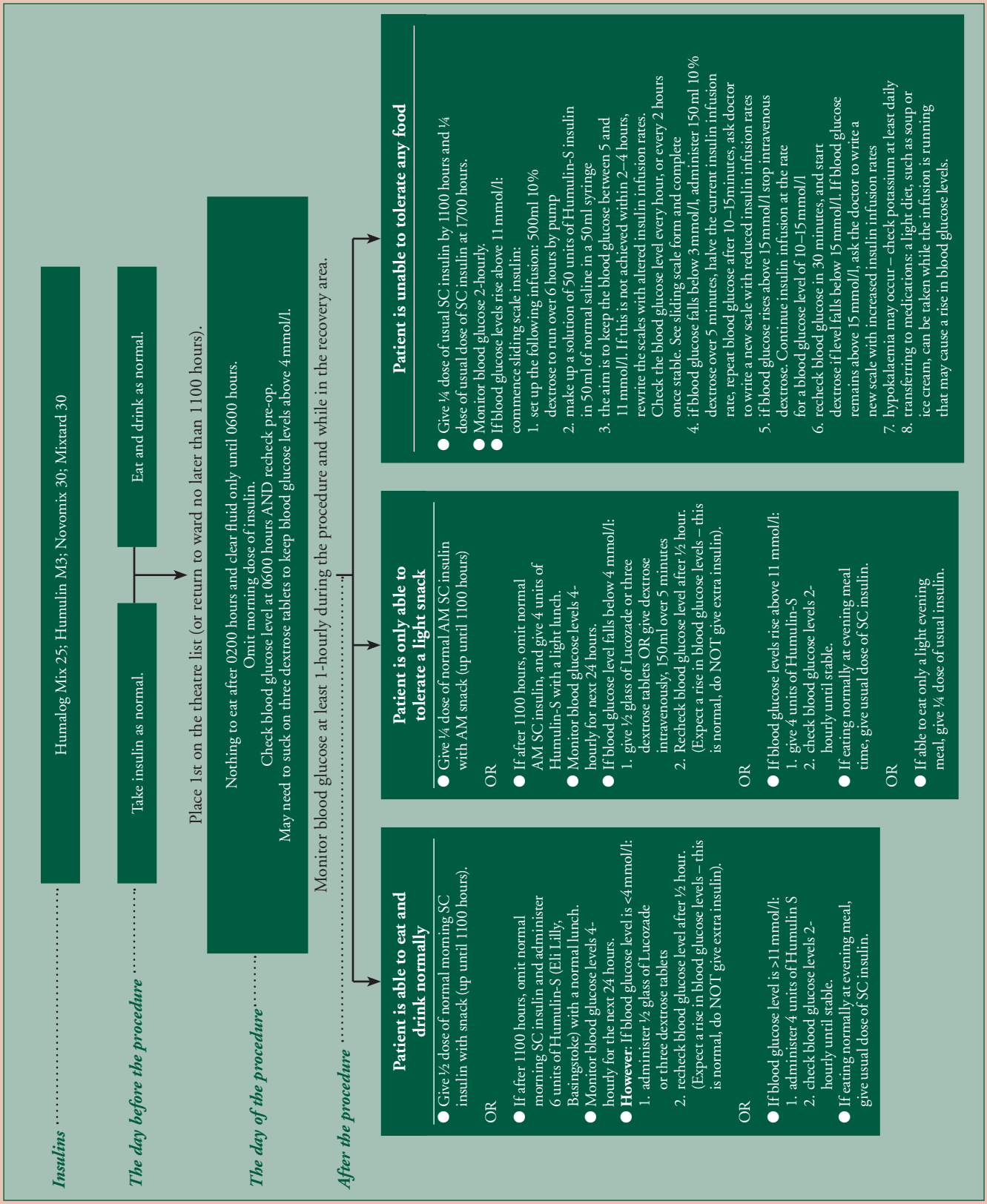

Appendix 1. Proposed guidelines for people with diabetes undergoing a surgical procedure in the morning who are on twice-daily mixed insulin. For those unable to tolerate any food initially, once they can tolerate any at all they should be moved to one of the other pathwyas illustrated. SC, subcutaneous; AM, morning.